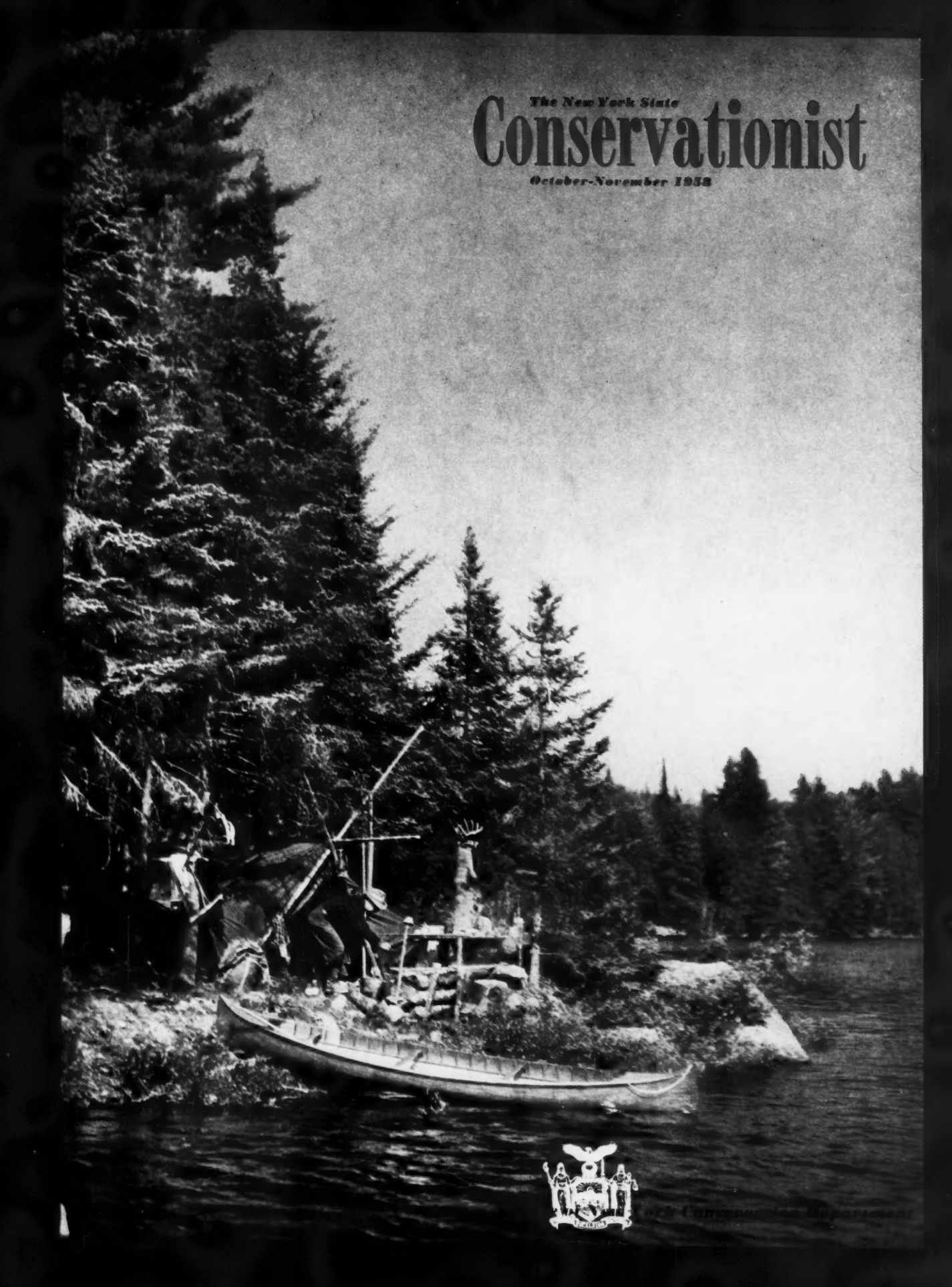
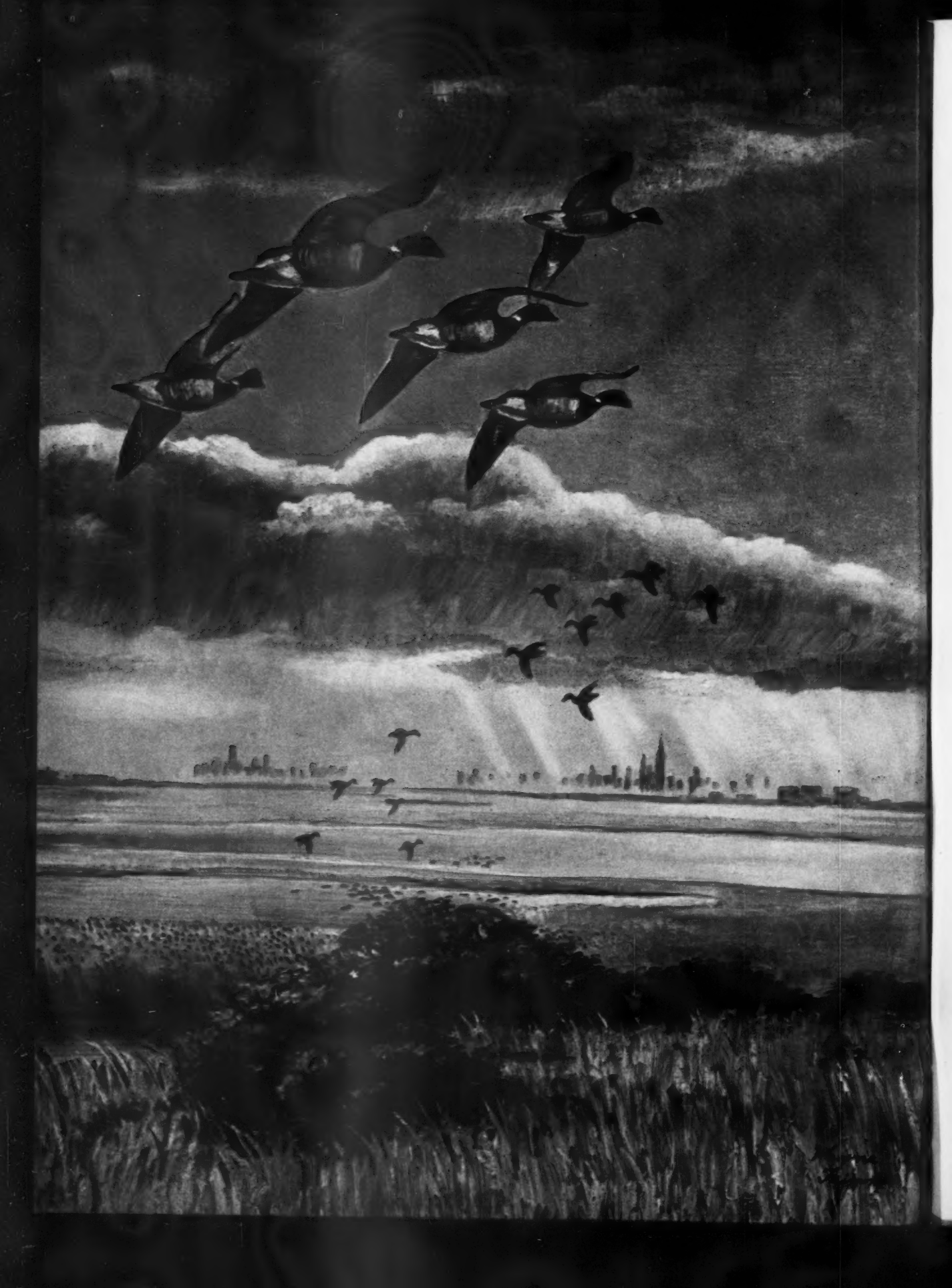


The New York State

Conservationist

October-November 1958



The Country Road

A straight line, the engineers tell us, is the shortest distance between two points. They not only tell us, they go out and build highways on that premise. Good highways, too, and quite essential to a nation on wheels; essential to everyone intent, most of the while, in getting from one point to another in the quickest possible time.

But fortunately for all of us, there are times when we can wander a bit in our progress from point "A" to point "B." And fortunately, too, there are roads to suit these times and moods. Not the beautifully engineered expressways, but the wandering country lanes and byways. These country roads meander, they poke into little blind valleys, they leap from bank to bank of twisting stoney brooks, they twist between wooded hills, open out to curve through fertile valley farmlands.

But wherever these country roads go, they are in no rush. They've lived with the people and the land and the seasons for generations. They have a mood and it's exactly the right mood any time of year, for those who are in no hurry to get from point "A" to point "B."

Take October—right now—for instance. Where can you see the colors of Autumn to better advantage than along the way of a country road? Here are old stone walls splashed with the scarlet of Virginia creeper and sumac, roadsides bright with the yellows and reds of popple and maple. Or Winter—where can you find the patterns of light and shadow; the artistry of drifts to compare to a snowy country road? Or Spring—where is the season so close, the sound of the peepers so clear, the birds so cheerful as along a country road? And Summer with the sun's heat lying over the roadside fields, insects droning along the way, the smell of hay in the air; why, the country road is so much a part of Summer that you expect to see a boy and a dog headed for the fishing hole around the very next bend.

We can't spend all of our time, you must agree, in progressing from point "A" to point "B" in the least possible time; we can't spend all of our time on the expressways. The byways are equally important and though they may be the despair of the engineers, they are a vital part of our history, a never-ending adventure to explore and perhaps more important than we think to our salvation.—Editor

The New York State

Conservationist

OCTOBER-NOVEMBER, 1958

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Protection of Nature in the U.S.S.R.

by G. P. Dementiev,* *Professor, University of Moscow*

We are indebted to George Dock, Jr., New York City, for the accompanying translation—from the French—of this report on the status of conservation in Russia. The article appeared first in the October-December, 1957 issue of La Terre et La Vie, *published by the Société Nationale d'Acclimatation, Paris, France.*

Russia's wealth of natural resources and the manner in which they are managed will play an important role on the world stage. The accompanying article looks back to the beginning and outlines the present day trend in this field.—Editor

THE protection of nature is a task so vast, complex and important that I hope my readers will excuse this necessarily fragmentary treatment of it. As my own specialty is zoology, I am giving most of my attention here to that aspect. Besides, it is *living nature*—the animals and plants—which today are the most seriously threatened.

Two angles of Russian nature-protection particularly attracted the attention of our remote ancestors—the exploitation of forests and the chase. Destruction of the timber-lands began in Russia between 400 and 900 A.D. with the advent of agriculture. Our oldest hunting regulations date back to the 11th Century and became a branch of official administration in such regions as Kiev and Muscovy.

The protection of animals broadened as the Russians pioneered eastward into Siberia between the 16th and 18th centuries. It became steadily more urgent as trade in valuable furs, under government monopoly, called for conservation of the breeding stock of the animal species which supplied them. Birds of prey used in falconry were also the objects of very early protective regulation; in fact, Russian and Siberian gyrfalcons and those of Iceland were the concern of diplomatic negotiations from the 13th Century to the 17th Century!

Limitation of hunting was the main purpose which led to the creation of Russia's first natural sanctuaries, such as those designed for the conservation of forests and of game animals near Moscow; and, for the protection of nesting gyrfalcons, on the Seven Isles, north of Murmansk. As long ago as 1541, a forest sanctuary was created at Bialovièje, in Lithuania, to save the European bison—which still survives—and the wild auroch, which later became extinct. The trapping of beavers has been regulated since the 17th Century. Elk have been protected near Leningrad since 1704.

At the same time, various special reservations were set apart for the local protection of game mammals and birds. Thus, in the 18th Century, hunting was forbidden to the public in the vicinity of St. Petersburg and Moscow, for the benefit of Court hunts which, however, were infrequent. In 1763, an important Act prohibited all hunting between March 12 and July 9. Early in the 20th Century, half-hearted measures were taken to protect the Siberian sable, and then only after the population of this valuable animal had diminished to an alarming extent.

It should be noted that in primitive regions, where large parts of the native population engage in the chase, as in Siberia and Turkestan, the hunters themselves fully recognized, centuries ago, the need for conservation of the wild animals on which they depended. From time immemorial, sanctuaries have existed in many such areas, now parts of the Soviet Union.

Forestry and the establishment of forest sanctuaries go back to the 16th Century, primarily for military reasons—to facilitate the defense of the Russian frontier against the Tartars and allied nomadic horsemen. Peter the Great extended this system, mainly to exploit, in an intelligent way, the great oak forests essential to the building of naval and merchant ships. His laws on this subject were issued in 1703 and in 1722. But these laws did not stop the intensive destruction of forests by landowners. In the first half of the 19th Century, the wooded areas of European Russia declined by a third. Disastrous forest fires in Siberia and Northern Russia added to this calamity. The development of the virgin southern steppes as farmlands also raised acute problems of floods and erosion.

Reduction in the game supply followed its natural course. The number of species exterminated is not large, but the populations of many others were greatly diminished, as were their ranges. Among the vanished species can be cited the auroch, the wild horse or tarpan, Steller's sea lion, and the great cormorant—discovered in 1741, extinct by 1850!

Improvement in hunting weapons and steadily rising prices for game and fur

*President of the Commission for the Protection of Nature of the Academy of Sciences of the U.S.S.R.

stimulated both commercial and sports hunting, and led, late in the 19th Century, to restrictive regulations covering the sea otter, fur seal, sable, Mongolian wild ass, Saiga antelope and the elk. The facts speak for themselves. Early in that century, the yearly catch of sea otters was about 1,000. By 1911, it was estimated that only 150 of these animals survived! The fur seal population of the North Pacific had declined from 3 millions in 1800 to 60,000 by 1903! The shrinkage of plant and animal resources forced the Soviet government, from 1917 on, to face all such conservation problems in an entirely new way.

The vast social changes brought about by the Revolution through the nationalization of property and the disappearance of great private estates also called for a modern, scientific, rational organization of the national economy, including its natural resources. This problem was aggravated by the growth of the Russian population from 160 millions in 1913 to 200 millions in 1955, and by the tremendous expansion of farm areas and of the lumber and fishing industries.

It should be added that, in spite of the disturbing results of the lack of foresight of earlier generations, Russia still has a rich, diversified fauna. It comprises 300 species of mammals, 704 species of birds, 161 reptiles and batrachians, 1,500 fish species and 100,000 species of insects and other invertebrates. The forest areas of Russia today represent, roughly, 1,800,000,000 acres, or over one-fifth of the timber resources of the entire world!

The first decrees of the Soviets relating to nature-protection concerned forestry (1918), hunting (1919), and other special measures (1920-1925). The system has recently been amended and improved by regulations made both by the central and local authorities.

The fundamentals of Soviet conservation take into account the paradox that the very technological and industrial progress which brings benefits to mankind also destroys living matter, *and cannot take its place!* To meet his own increasing needs, and assure the welfare of future generations, Man is forced to exploit natural resources in a rational way, to maintain their balance, and seek constantly to enrich them. This economic and social aspect of conservation is the basic Soviet plan today, not by any means overlooking the great scientific, esthetic and ethical values involved. The heart of conservation of nature is organized human intervention, active and farsighted. "Passive" conservationism is entirely inadequate in regulating natural processes.

Soviet nature-conservation embraces the regulation of exploitation of forests, plants and animals; protection of air and water against pollution; soil-conservation and anti-erosion measures; complete or partial protection of certain rare or threatened animals and plants; control of animal and plant species injurious to conservation; acclimatization of desirable species in new areas; creation of reservations; withdrawal from exploitation of certain areas; and protection of natural monuments, such as scenic beauty spots, trees and caves. Obviously, much the same measures and methods are employed in the Soviet Union as are followed nearly everywhere else in the field of nature conservation, judging from information supplied by the International Union for the Conservation of Nature and Its Resources.

All these measures aim ultimately at the protection of *Man*. They include safeguards against the abuse of insecticides, against water pollution, soil poisoning by certain fertilizers and against the disastrous effects of thermonuclear and atomic radiation. Such active methods of conservation must rest upon scientific research. A proper focus on the protection of natural resources depends most of all upon ecological findings, both plant and animal.

It is obvious that such questions as fluctuations in animal numbers and in fecundity and reproduction, the influence of environment and research into seasonal distribution and migration are of primary importance to conservation. In Russia, such subjects are the responsibility of our Institutes of the Academy of Sciences, of the universities, of specialized field research organizations and of the academies of the various republics. The scientific approach to nature-conservation, and co-ordination of activities in this domain, were accelerated in 1955, with the founding of a commission made up of members of the Academy of Sciences of the U.S.S.R. and of other institutions concerned.

Education in the protection of nature in Russia begins in the schools, and in organizations of young naturalists who engage in bird walks and "forest weeks." It is carried further by adult nature-protection societies. The oldest of these, founded in 1924, is the Russian Society for the Protection of Nature. It now includes many provincial affiliates and has already contributed a great deal to the solution of conservation problems.

Soviet natural-resource utilization and legislation rest on the principle that these resources are national assets, any exploitation of which must be legally justified. Under this conservationist viewpoint, sports and commercial hunting and fishing and control of animals injurious to agriculture or to public health are regulated. Laws strictly prohibit the destruction of nests and eggs, the killing of female ungulates and of their young, under the age of a year or more, and the destruction of burrows of mammals, except wolves and rodents.

Wholesale killing of game animals is prohibited, and likewise, shooting from 'planes or motor cars, the mass capture of birds and the trapping of defenseless

animals, such as molting waterfowl. Spring shooting is illegal everywhere except in the Arctic and subarctic zones. Many animals are under special protective regulation, adopted in 1946, in various parts or the Soviet Union—notably the sable, otter, desman, Ussurian raccoon-dog, marten, beaver, sea otter, fur seal, two species of deer, elk, antelope, European bison and the antelope-goat or goral. Most of these are still under complete protection. The elk, almost extinct in 1919, has now become common in Russia and Siberia, and can be hunted under privileged license, as is also true of the Saiga antelope, and of the desman, a fur-bearing, aquatic carnivore.

As for birds, species under absolute protection throughout the Soviet Union include the flamingo, white heron, several groups of perching birds and woodpeckers. Many others are given complete protection in regional areas. Mammals protected under local administration include the mink, ferret, badger, chamois, roe deer, wild sheep, reindeer, ibex, silver fox, wild boar, brown bear, gazelle, Siberian tiger and snow leopard. The central government itself has recently taken steps to protect Arctic fauna, such as the polar bear, reindeer and aquatic bird colonies, while many local administrations prohibit the taking of swans, partridges, most of the owls, hawks, falcons, eagles, storks and many other birds,

The protection of fish is closely related to water-conservation, prevention of destruction of plant and forest cover and soil erosion control. Energetic measures have been developed to prevent pollution of fresh waters by industrial waste, but the problem of coastal water pollution remains unsolved. Various regulations govern the legal dates and the permissible methods of fishing. The construction of big dams for electric power or irrigation has led to specific precautions to protect fish populations.

All forests in the Soviet are subject to conservation, some through complete protection against cutting, others subject to limited exploitation and to scientific reforestation, while still others, in remote, unpopulated regions, are exploited under carefully established plans intended to assure the conservation of Soviet timber resources. The value of woodlands in protecting soils, agriculture and the water supply is kept in view.

Steps to restore the population of cer-

tain animals, begun in Czarist times in an experimental way, have been expanded and intensified since 1925. They cover such operations as the planting of the Siberian silver fox, beaver, fallow deer, rabbits and sable in favorable areas where they either had disappeared or never had existed. Several kinds of African and Asian antelopes were likewise introduced into southern parts of Russia.

The first steps to introduce various exotic fur-bearers were taken in 1925. They include the muskrat, now very important to the Soviet fur industry, and the American ermine, beaver, mink and raccoon. The Ussurian raccoon-dog, originally restricted in range to extreme eastern Siberia and Manchuria, and a valuable fur-bearer, has been successfully transplanted to European Russia and the Trans-Caucasus. The sable, re-introduced into Siberia, has increased tremendously in numbers there. The Central Siberian squirrel, successfully introduced into the Crimea and the Caucasus, soon lost its value there as a fur-bearer. Various pheasants and other upland game birds have also been introduced or transplanted within the borders of Russia.

To these tasks should be added the efforts undertaken to increase the population of the European bison which, after two world wars, had practically disappeared. Today, European bison of pure strain are multiplying in several reservations, while huge herds of slightly hybrid bison now roam a reservation in the northwest Caucasus. The Saiga antelope, nearly extinct by 1900, was completely protected against hunting in 1920. Hundreds of thousands of them may now be seen on the steppes of Astrakhan, Kazakstan and elsewhere.

Important projects have been undertaken to populate interior lakes and river basins with wild ducks and geese. Large-scale efforts are under way to protect these and other birds by improvement of their breeding ranges and to introduce juvenile insectivorous birds into new forest plantings.

With regard to fish, the sturgeon has been introduced into the Sea of Aral, and the mullet into the Caspian Sea. Several species of trout, salmon and lake trout have been transplanted to new areas with gratifying results. Other fish species have been stocked in marshy waters to combat malaria.

In Russia today, there are 40 important natural "integral reservations," and many others are now being planned, primarily to protect game animals. They operate under scientific, local field management, concerned particularly with ecological problems and education in the techniques of practical conservation. In the reservations, nature enjoys complete, absolute protection, which has already proved effective in saving the European bison, elk, Siberian tiger, goral, Mongolian wild ass, and other important animals. These "integral reservations" cover an area of roughly 3,700,000 acres, located in the Ukraine, Caucasus, Crimea, Turkestan and especially in the Russian Republic itself.

In conclusion of this brief outline of the history and objectives of conservation in the U.S.S.R., and of the results so far obtained, I should emphasize that the ultimate solutions of nature-protection challenges require international collaboration. Of this, the remarkable activities of the International Union for the Conservation of Nature and Its Resources are a shining example, and so are those of the International Convention for Bird Protection. But it is also imperative to develop sound support and understanding in the public mind in favor of conservation, particularly among young people. While the progress so far made in this domain is encouraging, there still remain many things to do, and many questions to which answers must be found.

Making pulpwood on the Jacob's tree farm near Loon Lake

C. A. Jacob—a happy tree farmer

Jacob's red pines—40 years old

Logger fells a mature aspen in hardwood stand

The Jacob Tree Farm

by Harold Ellis

IN common with the usual belief in the Northeast. C. A. Jacob of Scarsdale. thought only his grandchildren would get the benefits when he began planting trees back in 1920 at the family's Summer home on the shores of Loon Lake, about five miles from Chestertown.

But the charter New York Tree Farmer and Forest Practice Act co-operator, now 65 years old, has been pleasantly surprised. Beginning in 1952, both sawtimber and pulpwood have been cut from his 52 acres of plantations in thinning operations. In addition, he has made selective harvests since 1949 in his 621 acres of natural woodland.

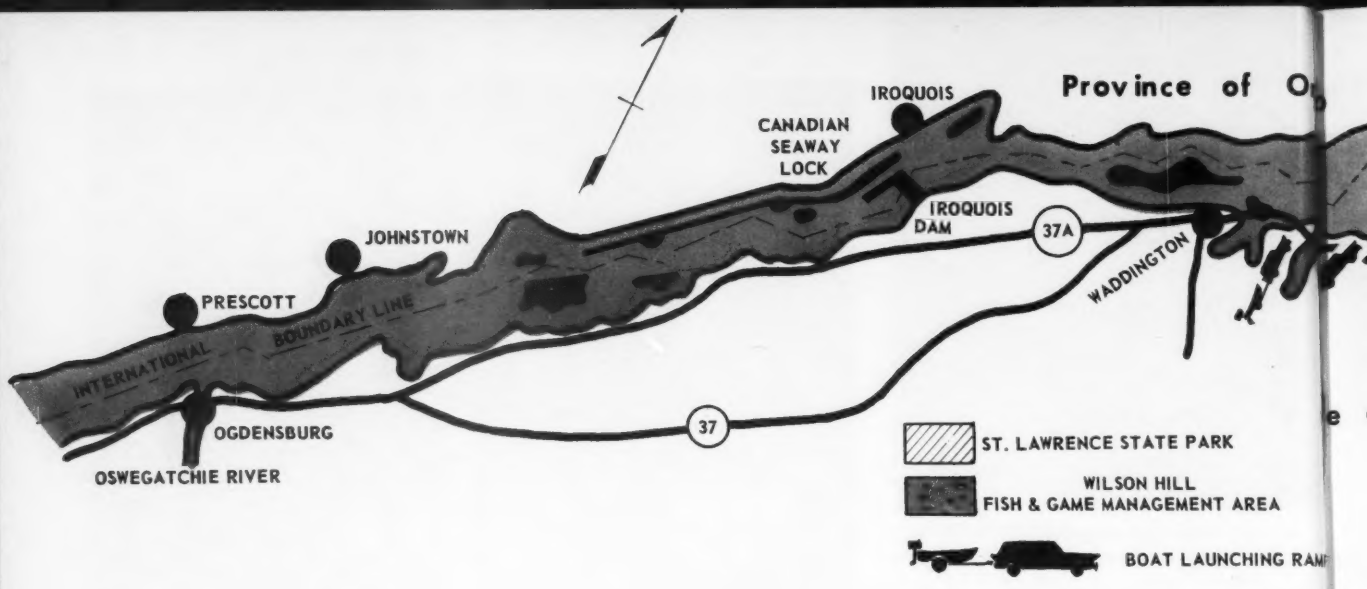
Besides the financial return from thinning a red pine plantation, Mr. Jacob got the added benefit of a startling increase in growth rates on the remaining stand. An increment boring taken by M. P. Smith, State Conservation Department Forester, shows growth rates more than doubled. Before thinning, a red pine took eight years to grow one inch in diameter; after thinning it grew one inch in three.

Mr. Jacob fondly recalls that the late Harris Collingwood, then Cornell Extension Forester, first interested him in planting trees. Mr. Collingwood brought a supply of seedlings with him to a meeting held to interest landowners in tree planting, but couldn't give a single tree away. He insisted that Mr. Jacob take them to keep them from going to waste.

The Scarsdale man planted those trees and a lot of others in the next few years.

"Darned if they didn't grow," he now says in about the same way parents talk of their children's exploits. Mr. Jacob adds: "I got my money's worth out of the taxes I've paid just seeing the trees grow, but now the pendulum is swinging the other way. I'm now getting money out of the woods."

Until last year, Mr. Jacob obtained free forestry advice under the Forest Practice Act, but his timber harvesting has grown to the point that management of his woodlands is now handled by Consulting Forester D. E. Strong of Wilmington.



The New Face of t

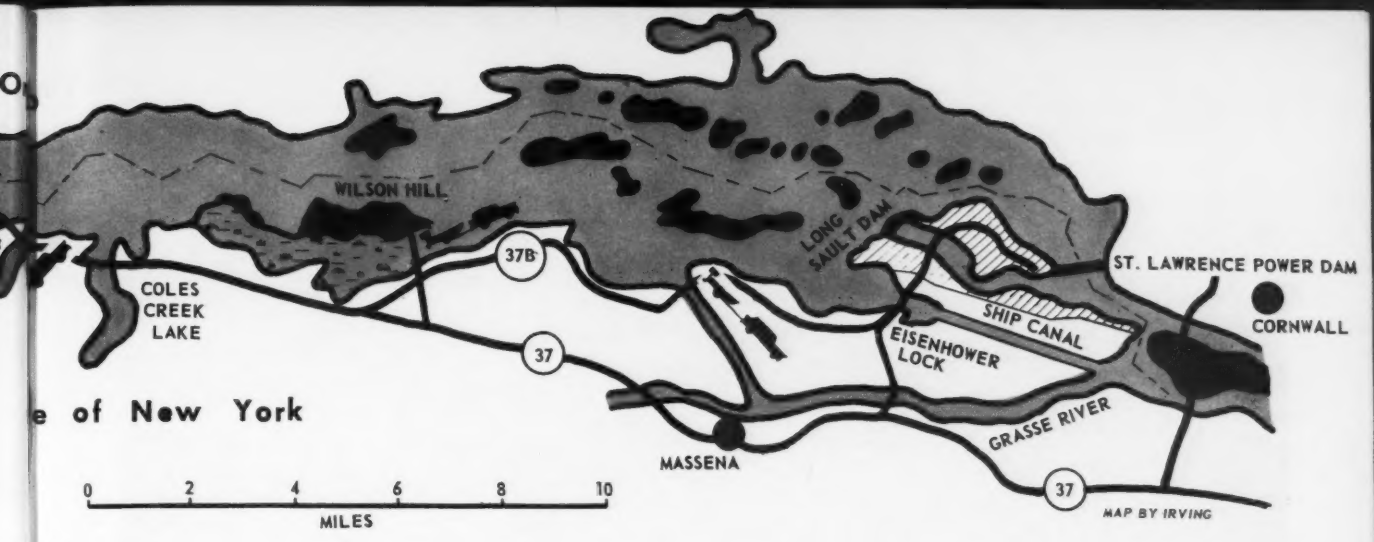
AT 8 o'clock in the morning of July 1, 1958, 30 tons of dynamite blasted away the huge earthen temporary barrier above the power dam at Barnhart Island and the face of the St. Lawrence River was changed forever. The turbulent waters of the mighty river surged again into their old channels; the famed International Rapids section extending from the Cornwall-Massena area at the easterly end to the Iroquois-Ogdensburg area at the westerly end, rapidly became the bed of the new Lake St. Lawrence, some two miles wide, 30 miles long and with depths ranging to 85 feet.

In THE CONSERVATIONIST for December-January, 1956-57, some theorizing was done about how this awesome seaway-hydroelectric development would affect wildlife resources and recreational opportunity in the St. Lawrence area. Now, these major habitat changes were at hand. Since July 1, 1958, Lake St. Lawrence has risen over 30 feet, creating miles of new shoal areas, shallow bays and deep water channel. The present 238-foot sea level elevation of the lake will ultimately rise four additional feet to the operational level of 242 feet before this transition is completed.

The New York State Power Authority has been successful in producing a coordinated recreational plan for Lake St. Lawrence. Much of this transition is evident as one now drives along the lake. Ten million cubic yards of waste material excavated for navigational purposes, placed in spoil piles along the lake, have been graded and seeded. Many of these huge spoil mounds now simulate natural topography. The dikes necessary to contain the lake are now green bands of grass. Natural wooded areas have been retained and seedling plantings are in evidence in the old field areas along the new lake shore. A 2,000-acre St. Lawrence State Park, with bathing beach, restaurant, picnic and boat basin facilities, is presently being developed at Barnhart Island. At the Village of Waddington, the playground, beach, bathhouse and the marine basin are in various stages of development. The beach and bathhouse facilities at Massena are also well under way. Along the shores of Lake St. Lawrence, numerous natural boat basins and launching sites will be available for public use. Some of these occur where existing roads have been inundated by the newly-formed lake. In addition, hard-surfaced boat launching ramps have been installed by the Power Authority at strategic intervals *(see map)* so that all parts of the new lake are now readily accessible.

In the area adjacent to Wilson Hill, five miles west of Massena, the raising of Lake St. Lawrence is creating the 2,750-acre Wilson Hill Fish and Game Management Area. This shallow water area, developed by the Conservaton Department in co-operation with the New York State Power Authority, is retained by low dikes to avoid fluctuation consistent with the

During construction; Barnhart Island power dam, right center; two locks and Seaway canal at left



f the St. Lawrence

by John E. Wilson, *District Game Manager*
and Donald G. Pasko, *District Fish Manager*

operation of the Power Pool (Lake St. Lawrence). The impoundment is now being filled by intake pipes fitted with flap-gates. These gates will hold the water at stable levels within the diked management area. When the ultimate operational level of Lake St. Lawrence is attained, the Wilson Hill Area will have a flooded basin of 1,850 acres in addition to 900 acres of adjacent uplands.

Within this impoundment, ideal conditions will be ultimately created for waterfowl which will be the prime wildlife consideration. Shallow ponds are now being constructed along the south shore to provide permanent water areas along the marginal flowline. The tillable land at Bradford Point, which, at full flowage levels will become an island within the management area, will be planted to small grains to provide supplemental feeding for migratory waterfowl. The extensive uplands along the south side of Wilson Hill will be maintained in grassland to provide additional waterfowl feeding and nesting areas. During the period of this initial development, the area will be established as a refuge unit. The assignment of the resident technician to the area this year, will provide for the assessment and development of a sound management program. Public hunting opportunity will ultimately be provided for on much of this area. Duck hunters may expect specific control, such as daily and weekly permits, or rest days, so that good and sustained hunting can be provided.

Nearing completion, waters of mighty river surge into old channel; rise as Lake St. Lawrence

The St. Lawrence River, with its steep banks and fast current, formerly provided limited amounts of quality waterfowl habitat. That, however, is no longer the case—the shallow flooding of many hundred acres of shoreline along Lake St. Lawrence will result in greatly increased habitat for waterfowl. Present observations on the newly-flooded areas indicate that waterfowl have already found much to their liking. Blue-winged teal, mallards, blacks and wood ducks will be the primary breeding species found in the area. Scaup, whistlers and ringnecks will be the principal migrants using the area.

The entire St. Lawrence River has long been famous for its excellent angling for a wide variety of game fish—smallmouth bass, northern pike, muskalonge and pike perch, not to mention the really fine eating pan fish such as yellow perch, bullheads, rock bass and sunfish. The section between Massena and Ogdensburg has been no exception. There is little question but that the new impoundment of the River, Lake St. Lawrence, will furnish good, and perhaps better than ever, fishing in the future, True, the wide dispersal of the existing fish population through the sudden and greatly expanded volume of water forming the lake, has resulted in relatively poor catches this first Summer. But as conditions stabilize and the fish become adjusted to their new habitat and the fishermen learn all over again when and where to find the fish, better catches can be expected.

Newly flooded shallows at Wilson Hill will be developed as fish and game management area

The effects on the fish population resulting from the sudden change from river to lake-like conditions are a subject of interest and study by the Department.

Already it has been noted that the extensive shallows, with the high fertility characteristic of newly-flooded lands, are producing large quantities of minnows. Thus, a greatly increased food supply is appearing, which should bring about stepped-up growth by the many fish already present. Perhaps there will be a period of a few years before the fish become hungry enough to show great interest in anglers' baits, but when the fish really start to bite again there should be some whoppers waiting to be caught.

Stocking of additional young fish in the new lake will probably be unnecessary. Good spawning areas are available, and it is expected that all of the species present will continue to maintain themselves in large numbers by natural reproduction the same as they have in the past. However, hatchery facilities are available for providing additional stock, if such a need develops.

The smallmouth bass, the No. 1 game fish of the region, is a subject of special attention. In recent years, hundreds of adult smallmouth bass have been netted, tagged and returned to the river in the area now impounded. Continued studies of the movements, growth, success of natural spawning, rate of angling removal, etc., should produce extremely interesting information and certainly will provide a basis for sound management of this species.

The largemouth bass is about the only warm-water game fish species for which good fishing has not previously been available in the immediate vicinity of this part of the river. However, the Wilson Hill development is expected to provide several hundred acres of shallow, warm, weedy pond area suitable for this species. Thousands of young largemouth bass have already been stocked in the new pond and are off to a good start. Large fish from the adjoining Lake St. Lawrence, which might interfere with survival of these young fish, are being excluded from the Wilson Hill impoundment by screens installed in the connecting culverts. It will take time for these bass to grow up, however, so fishermen will probably have to wait at least three years before they can benefit from this new fishing opportunity. A 500-acre lake, formed in the course of Coles Creek (a small tributary of the river, 12 miles west of Massena) as a result of the impounding of the river, has also been stocked heavily with largemouth bass and looks as though it might develop into a real "hot spot" for fishing within a few years. Water levels in Coles Creek Lake have been stabilized by a special weir, which separates it from Lake St. Lawrence.

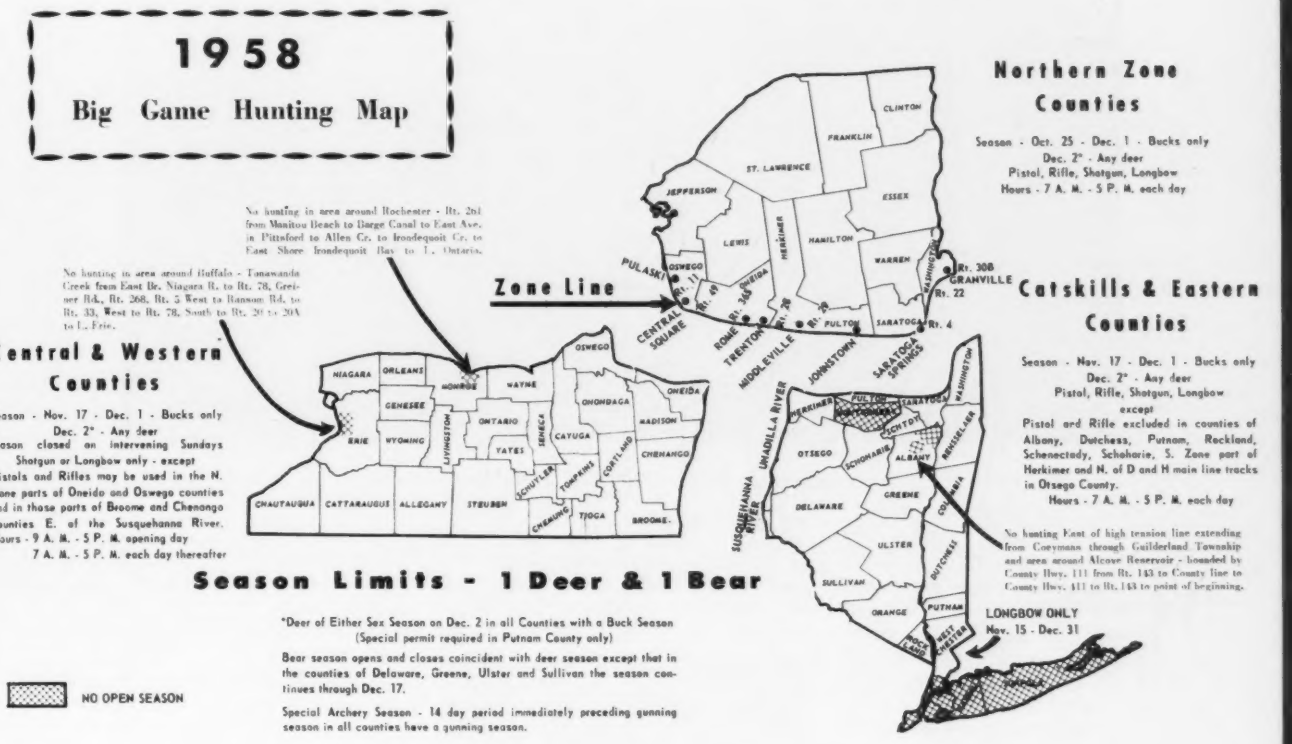
Ice fishing is expected to become more popular from now on in the Lake St. Lawrence area, with its vastly greater areas of safe ice forming in the Winter on the now quiet waters of this part of the river. Thus, prospects appear good for some fine fishing almost the year around.

With an excess of 50 miles of shoreline in public ownership, unlimited access facilities and excellent habitat, Lake St. Lawrence is certain to become one of the most popular playgrounds for outdoorsmen anywhere in the Northeast.

The Deer Season For '58

How It Looks From Here

by Arthur W. Holweg, *Supervisor of Game Management*


1958
Big Game Hunting Map
Northern Zone Counties
Season - Oct. 25 - Dec. 1 - Bucks only
Dec. 2* - Any deer
Pistol, Rifle, Shotgun, Longbow
Hours - 7 A. M. - 5 P. M. each day
No hunting in area around Rochester - Rt. 261 from Manitou Beach to Barge Canal to East Ave. in Pittsford to Allen Cr. to Irondequoit Cr. to East Shore Irondequoit Bay to L. Ontario.
No hunting in area around Buffalo - Tonawanda Creek from East Bk. Niagara R. to Rt. 78, Greiner Rd., Rt. 268, Rt. 5 West to Ransom Rd. to Rt. 33, West to Rt. 78, South to Rt. 20 to 20A to L. Erie.
Zone Line
Central & Western Counties
Season - Nov. 17 - Dec. 1 - Bucks only
Dec. 2* - Any deer
Season closed on intervening Sundays
Shotgun or Longbow only - except
Pistols and Rifles may be used in the N. Zone parts of Oneida and Oswego counties and in those parts of Broome and Chenango counties E. of the Susquehanna River.
Hours - 9 A. M. - 5 P. M. opening day
7 A. M. - 5 P. M. each day thereafter
Catskills & Eastern Counties
Season - Nov. 17 - Dec. 1 - Bucks only
Dec. 2* - Any deer
Pistol, Rifle, Shotgun, Longbow
except
Pistol and Rifle excluded in counties of Albany, Dutchess, Putnam, Rockland, Schenectady, Schoharie, S. Zone part of Herkimer and N. of D and H main line tracks in Otsego County.
Hours - 7 A. M. - 5 P. M. each day
No hunting East of high tension line extending from Coeymans through Guilderland Township and area around Alcove Reservoir - bounded by County Hwy. 111 from Rt. 143 to County line to County Hwy. 411 to Rt. 143 to point of beginning.
LONGBOW ONLY
Nov. 15 - Dec. 31
Season Limits - 1 Deer & 1 Bear
*Deer of Either Sex Season on Dec. 2 in all Counties with a Buck Season
(Special permit required in Putnam County only)
Bear season opens and closes coincident with deer season except that in the counties of Delaware, Greene, Ulster and Sullivan the season continues through Dec. 17.
Special Archery Season - 14 day period immediately preceding gunning season in all counties have a gunning season.
NO OPEN SEASON

DEER hunting prospects are generally good for this Fall. The deer herd level is high in most of the Adirondack and Catskill mountain areas, and lower Hudson River counties likewise have large deer populations. The high numbers of deer in these sections of the State reflect an inadequate harvest in recent years. As a consequence, herds have grown to a point in parts of the area mentioned where they are out of balance with their range and with the agricultural economy. For the second consecutive year, the last day of the big game season is open for shooting deer of either sex, and granted reasonably good weather and access to areas supporting large numbers of deer, hunters will harvest the crop.

Problem counties are Montgomery (upstate) and Suffolk (on Long Island) where there is no open season to harvest surplus deer—and Westchester (in the Lower Hudson Valley), where deer may be taken with the bow and arrow only. This affords wonderful recreation to a great many sportsmen but does little to solve the top-heavy deer problem.

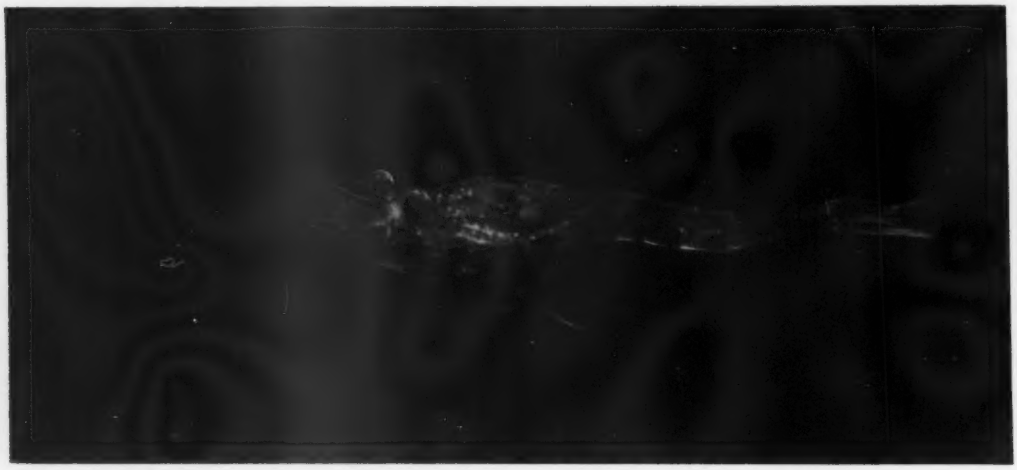
In Montgomery there is every reason for an open season. There was evidence there of some starvation and there was widespread running of deer by dogs. In Westchester and Suffolk the problem is further complicated by dense human populations and the continuing spread of housing developments. Meanwhile, landowners suffer a great amount of damage from deer. Some means to bring these herds under control and to alleviate property damage is being sought by the Department, the Big Game Committee of the Conservation Council and farm representatives.

Although hunting prospects are generally equal to those of last year, they will not be uniform. Because of deep snow in the latter half of the Winter and associated kill of deer by dogs and starvation in parts of the Catskills, the Adirondacks and even Central New York, hunter success may be somewhat less than last year. Dog depredations on deer were especially severe in a band of country running from Albany to the Syracuse vicinity. It is probable that because of the severe inroads in the deer population by dogs in parts of the Counties of Cayuga, Onondaga, Cortland, Madison and Chenango, a reduced harvest by hunters will result there this Fall.

Last year, just over half a million sportsmen hunted deer in New York and harvested a total of 72,677 from a herd that was estimated, before the season, to number between 350,000 and 400,000 deer. It is anticipated that these figures will be very close to those applying this Fall.

Mysis on the Menu

by Robert Vincent,
Research Assistant in Fishery Biology, Cornell University



Young lake trout fare well on mysis—the opossum shrimp

MYSIS for breakfast, *mysis* for lunch, and *mysis* for dinner may well be a complaint common to young lake trout. Stomachs of small lake trout that have been taken by gill netting in Cayuga Lake are almost invariably filled with a greyish mass of partially digested *mysis*. Although familiar to small lake trout and ciscoes, few people know what they are and fewer yet have seen a live one. Resembling a cross between a small crayfish and a shrimp, this crustacean lives an inconspicuous life in deep, cold lakes.

The principal features of *mysis* are: A length of one-half to three-fourths of an inch, two pair of long antennae, a slender transparent abdomen, a pair of large black eyes, six pair of forked appendages, and mama *mysis* adds a brood pouch to this equipment. One hundred fifteen members of this group (*Mysidacea*) have been described from North American waters, but only four inhabit fresh water. *Neomysis mercedis* is found along the West Coast; two species are limited to caves and crab holes in Central America; and the fourth species, *Mysis relicta*, extends its range over northeastern America as well as northern Europe. This is the species that inhabits the deeps of our Finger Lakes and tops the menu for young lakers.

Mysis made its way into fresh-water either during the Pleistocene or during the immediate post-glacial period. The name *relicta* attests to the belief that this species is a carry-over from glacial seas. First noticed while dredging in Lake Superior in 1871, it is now known to occur in the New York Finger Lakes; all of the Great Lakes; Geneva, Green, and Trout lakes in Wisconsin; Waterton Lake on the Montana-Canadian border; and many larger Canadian lakes. These known occurrences coincide with the extent of the Pleistocene glaciers.

Cool deep water, well-supplied with oxygen, is the living area of *mysis*. They do not like light. Some individuals have been taken as deep as 885 feet in Lake Superior. Give *mysis* a nearly constant water temperature of 40° F. with perpetual darkness and this creature is happily at home. But they do have one habit that periodically brings them away from the cool lake bottom—an upward nighttime migration that carries them nearly to the surface. Although they are fragile creatures, *mysis* are well adapted to their unique environment. They are able to withstand water temperatures up to 70° F. and even direct sunlight for short periods.

A common name, opossum shrimp, is appropriate as the females have two pair of leaf-like plates called lamellae that curve forward under the thorax forming a brood pouch. The eggs and developing young are carried in this pouch until the young are one-fourth inch long when they become free-swimming like the adults. Ten to twenty eggs are carried in the brood pouch with the most active reproduction occurring during the Winter; in colder lakes egg-bearing females are present throughout the year. Sexual maturity is reached at one or two years, depending upon location. The normal life span of this crustacean is two years.

Food is obtained by an efficient circulating and filtering system. As *mysis* glides smoothly through the water, currents from the forward appendages sweep decomposing plant and animal fragments and minute plants to the mouth region where many bristles strain out the food particles.

Mysis are of economic importance as fish food. They are one of the few small, free-swimming animals that live in abundance near the bottom of deep lakes. Fish that occupy this same niche (cisco, burbot, inconnu, common whitefish, and lake trout) depend heavily upon them for food. Not only do small lake trout feed on *mysis* till they are eight to ten inches long, but in many lakes the larger trout feed on ciscoes which in turn have been eating *mysis*.

So, next time you get a jarring strike by a Finger Lake trout, you can thank a small, fragile and nearly transparent "shrimp" for its key place in the whole chain of events.

Cayuga Lake Trout

Part 3—Their Food, Growth, Survival and Management

by Dwight A. Webster,
Professor, Fishery Biology,
Cornell University

This is the third and concluding article in this series on the lake trout of Cayuga. Twelve years of intensive studies by a great many fishery biologists have been invested in this work. They have produced a milestone in fishery research and management assuring the future of this fine sport fishery. —Editor

A LAKE TROUT in Cayuga is often gluttonous in feeding habits but can scarcely be characterized as a gourmet, even piscatorially speaking. A single food item appears with regularity: The "sawbelly" or alewife. To this little silvery fish goes the credit for the high lake trout production of certain Finger Lakes where it has taken up residence: Cayuga, Seneca, Keuka and Canandaigua.

Of 738 lake trout stomachs examined during the Summer months (1949-55), 60 per cent had eaten one or more alewives. Alewives first appear conspicuously in the lake trout diet at lengths of 8 to 10 inches. Baby lake trout feed on the deep water crustacea *Mysis* (see companion article) and *Pontoporeia* and occasional bottom insects. The only other recognizable fish eaten by lake trout are sculpins (found in 29 stomachs) and the odd trout-perch, smelt and cisco.

Pontoporeia, another food of baby lakers

The coming of the alewife to the Finger Lakes is somewhat of a mystery. Records indicate it was well established by 1872, so that residents accept the fish as going with the area. Alewives are essentially marine in habitat, living in the coastal waters of the north Atlantic but spawning in fresh-water streams in the Spring. The "landlocked" form in the Finger Lakes differs in the much smaller maximum size (4 to 5 inches compared with 10 to 15 inches in the marine form) and in the loss of desire to return to salt water. Alewives belong to the herring family and they retain the family schooling characteristics in fresh-water. Under Finger Lake conditions they are very successful, occur in tremendous numbers, and are preyed upon by nearly all other species of fish from rock bass on up.

Lake trout probably get in their best eeding on alewives during the late Spring and early Summer. At this time alewives press shoreward to spawn in shallow water and the mature population is crowded around the periphery of the lake. Although warm surface water is sufficient to bar lake trout from following alewives to the along-shore spawning grounds, there is still plenty of easy feeding at depths just below 25 to 30 feet. This is the fattening period for the lakers after a lean Winter. By human standards, alewives would be considered a "fattening diet." They have a high oil content that is reflected in heavy fat deposits in the body of the well-fed trout.

Alewives—No. 1 lake trout food

Smelt are often considered as traditional lake trout food, but they are virtually absent from Summer trout stomachs in Cayuga. The reason for this is an almost complete separation of smelt from lake trout at this time. Gill net samples indicate smelt are most abundant over the deep mud flats adjacent to the north and south ends of the lake. Lake trout are relatively scarce here. Smelt are most prominent as food in the Spring when they shoal inshore for spawning.

Sculpins present something of a hors d'oeuvre appearance and lake trout find them appetizing. They are best known to lake fishermen by appearance in trout stomachs in the Spring. Trout also eat sculpin eggs. These are laid in clusters under rocks and the fish must have to root about a bit to get them. The pearlescent pink eggs are large (about 1/8 inch in diameter) and the notion is common, though in error, that lake trout are feeding on rainbow trout eggs, and that the latter species is spawning in the lake proper.

Sculpin—another trout delicacy

Growth

Cayuga lake trout diet may not be varied, but alewives have the nutritional punch to provide for flattering growth, particularly in early life. The schedule below shows average mid-season sizes for lake trout in Cayuga Lake:

Lake Trout Growth—Cayuga Lake

Age (years)	*Total Length (inches)*	*Weight (lbs.)*
1	6.7	—
2	10.4	0.3
3	14.4	1.0
4	18.9	2.2
5	22.7	3.7
6	25.0	5.1
7	26.6	6.0
8	27.3	6.6
9	27.7	6.8

Growth through the first six years is much more rapid than usually encountered elsewhere in this species. The pattern is also characterized by a sharp decrease in growth rate after this age and it is evident that on the average Cayuga lake trout grow slowly after attaining a length of about 25 inches and five pounds. In this regard it also differs from lake trout in many lakes where fast growth continues through later life and weights of 20 pounds or more are commonly attained. Some lake trout in Cayuga do reach 10-15 pounds in weight, but these are not numerous. The largest lake trout examined by University biologists weighed 19.6 pounds.

Morning mists shroud fishery men as they lift net for lake trout breeders

The growth pattern in Cayuga is characteristic of other Finger Lakes with alewives. Attainment of maturity is responsible for the sharp decrease in growth. Male lake trout commonly mature at five years of age, females at six. After maturity, food intake must also go into replacement of the reproductive products as well as general loss of weight that always attends the spawning season. This need has to be taken care of before there is much of a net increase in growth. An alewife diet is adequate to bring the older fish back into condition, but provides little margin for average population growth at current densities of both populations. Waters that typically produce large lake trout do so because of an abundance of larger food fish such as suckers, small whitefish or ciscoes. Apparently it is simply an example of getting more out of a meal consisting of a one pound sucker, for example, than having to worry a school of alewives to consume the nutritional equivalent in 40 or 50 individual small fish.

Note from the foregoing growth data that lake trout in Cayuga attain the minimum legal length of 15 inches at three or four years of age. Lake trout are slower growing in waters of the Adirondacks and often take twice this time to reach such a size.

Survival

The age and growth studies in Cayuga Lake are suitable for investigating certain aspects of vital statistics useful in fishery management. One of these is the answer to the question "What proportion of the fish live from one year to the next?" In a large body of water, evidence on this point must obviously be determined by indirect means.

Basically, the method consists of determining the numbers of fish of various ages in a representative sample of the population. On the average, as age increases, the numbers of individuals represented will decrease through the life span of the fish. This is because fishing and natural factors are removing fish from the population. In a simplified example, a sample might show 200 fish of age 3, 150 of age 4. The percentage survival between these two ages is 150 divided by 200, or 75 per cent. This process can be repeated throughout the range of ages in the sample and average survival obtained. In the 1,400 trout sample from Cayuga Lake this works out to 46 per cent for trout over four years of age. It follows that over an estimated 54 per cent (100-46) die off each year. One would hope that most of these deaths were due to fishing, but additional figures do not bear this out.

An estimate of percentage of trout taken by angling can be obtained from tags returned by Cayuga Lake anglers. There is a minimum return of 5 to 6 per cent of trout tagged the preceding season and it is probable that the angling catch does not account for over 10 per cent. This leaves an unaccountable deficit of about 45 per cent loss to natural causes—old age, disease, lamprey eels. Segregation of these various sources of natural

Netting lakers for spawn is not always a calm task

A haul of mature lake trout, plus some common suckers

mortality would be of value but this is not possible from data now available. *The important point is that under present conditions, more fish are lost to these natural factors than are taken by angling.* This implies that more fish could be removed by angling without greatly decreasing the stock of trout or otherwise sacrificing the present quality of fishing by reducing the average size of trout taken. Angling would be removing a share of the fish that would die off each year anyhow.

Summary

The Cayuga Lake studies, extending over a 12-year period (1946-1957) have involved observing the results of planting more than a million hatchery reared lake trout. The results can be summarized as follows:

1. The hatchery fish now planted by the Conservation Department at the rate of 80,000 fingerlings and 8,000 yearlings per year show satisfactory survival and produce angling of high quality. Yearling trout (about 5 inches long) planted in April show four times the survival of fingerlings (3½ inches) planted in September. However, this superiority is not enough to offset the numerical advantage of fingerlings (about four times as many fingerlings can be reared for the same food costs and space requirements) and the related problems of carrying the fish in the hatchery for an additional six months.

2. Natural production of trout in Cayuga Lake is insignificant and presumably due to the poor quality of spawning areas. Taughannock Point, for example, has a heavy silt mantle on the bottom in the area selected by trout for spawning. All available evidence indicates inadequate spawning has been the rule for at least 75 years, perhaps much longer.

3. Growth is rapid up to age six and a size of about 25 inches; thereafter it diminishes rapidly due to the onset of maturity. Alewives are the important food of all but the smallest trout.

4. Owing to the growth rate and the high quality of fishing, Cayuga Lake anglers do not usually keep trout until they have reached a length of about 20 inches. The minimum legal length of 15 inches is thus non-restrictive in regulating the catch. At times of peak availability, many anglers take the 3-fish daily limit, hence this regulation does function to limit the total catch.

5. Under present conditions many more trout in the Cayuga Lake population appear to die of natural causes than are caught by angling.

Management Implications

There is no reason to believe that the present quality of fishing in Cayuga Lake cannot be maintained by hatchery plantings. Improvement of natural spawning areas does not seem practical for a lake of this size as long as there is little assurance that it would be permanent.

Lake trout in Cayuga are not harvested to capacity by angling. A general trend of increased fishing pressure may partly take care of this. However, additional opportunity for taking lake trout appears warranted. It is not reasonable to do this by increasing the daily limit beyond 3 fish (3 fish averaging over 3½ pounds is enough), but it is reasonable to provide increased fishing opportunities by extending the open season.

In Cayuga Lake there is no need for protection of an adequate breeding stock, hence fishing during the breeding season is not an important issue. However, changes in regulations on this body of water may also be applicable on other Finger Lakes even where natural spawning is of importance. Some states and Canadian provinces permit year 'round fishing for lake trout, apparently without unfavorable results. An extended season on the Finger Lakes should be evaluated during a trial period before final recomendations are made. But such a change seems to hold promise for additional fishing opportunity in central New York, particularly when considered with comparable recommendations for rainbow trout in these same waters (see CONSERVATIONIST, Aug.-Sept., 1957).

Forestry starts here—with the planting of barren hilltops

New York's Forest Practice Act — A Progress Report

by Charles F. Baar, *Superintendent, Forest Investigations*

A forester marks a mature tree for harvest

Portable sawmills convert timber into lumber

Pulpwood—another important product of plantation and woodlot

TODAY, a lawyer or a doctor commands respect in the community simply by reason of acceptance in his chosen profession. But it was not always thus. Professions accepted with respect today were once looked upon with doubt, lack of confidence, misunderstanding; even fear.

Yes, there were growing pains in the professions that are so widely accepted and respected today. So it's not surprising that forestry—a comparatively new science and profession — has suffered these same growing pains. It is difficult to say how long it will take before full public acceptance is obtained, but it is encouraging to note that the profession of forestry has made significant advances during the past half century. Whereas fifty years ago nearly all foresters were employed by the Federal government, today we find them well represented in private industry as well as in state, county and city governments.

Perhaps the greatest factor working against the forester is time. Whereas a dentist can calm an aching tooth in a matter of hours, or a physician can reduce a severe infection within a few days, it takes the forester and nature a generation or more to heal the wounds found in a poorly managed forest stand. In comparison with the time required for replacing other natural resources, however, that required by the forester is but a fleeting moment. For instance, our scientists tell us that it took millions of years and a series of accidental natural phenomena to produce our coal, oil, natural gas, copper, other minerals and soil. While it is true that industry is developing excellent substitutes, man at this time does not have the know-how to replace most of these precious inheritances. Timber, too, is a precious substance, but the difference is that the forester if given the opportunity and the time, does have the know-how to bring it through to maturity and harvest.

Time has some foot-dragging hand maidens, however. Taxes, delayed income, shortage of investment money, lack of credit and perhaps, the lack of personal gains during one man's life time—all contribute to the reluctance of many timberland owners and potential investors to practice forestry as a long term venture. Now that we have established some of the obstacles with which the forester is confronted, let's look at some of the assets which are working in his favor. First, he has Mother Nature working in his corner. No matter how man abuses the land, nature in a relatively short span of time starts to heal the scars—first with weeds, grasses, brush, inferior short-

lived tree species, and then with the more valuable timber species. Nature's composition, however, is not necessarily the most desirable insofar as the present needs of man is concerned. Thus, the forester working in young immature stands can and does help nature in producing the materials man requires.

Second, the New York forester has a tremendous factory in which to work. He now has available over 12 million acres of privately-owned commercial forest land which in time and given the opportunity, he could build into the greatest natural wealth the people of this State could ever hope to possess and pass on to our future generations. You may well ask if this is so, why all the talk? Well let's analyze this acreage and see what it consists of today. According to a study made by the Northeastern Forest Experiment Station, U.S. Forest Service, published under the title, "The Timber Resources of New York," by George R. Armstrong and John C. Bjorkbom, our present sawtimber stands having a possible economic appeal to the lumbering industry, amount to about 5 million acres. These stands have a stocking of from 1,500 to over 5,000 board feet in tree diameters ranging between 9 and 11 inches breast high. Much of this volume is composed of the less desirable species, low quality material and a lot of it is uneconomical to harvest. The study tells us, too, that about 4.3 million acres are covered with pole-size timber (5"-9" DBH), 2.4 million acres of seedling-sapling timber (less than 5" DBH) and .3 million acres non-stocked.

Thirdly, the study reveals that the net annual growth rate considerably exceeds the volume cut. Unfortunately, much of this surplus growth is being laid on trees having small diameters, poor form and of low value species.

All this means that the foresters have a tremendous job to do during the next fifty years if this generation has the interest it should for providing the next generation with a supply of timber for furniture, homes, paper and many other necessities of life. Now you may say, "Why worry? The future will take care of itself." Or, you may be more analytical and ask, "If this is true, why hasn't something been done before this?" Well, something has been done! That something is New York's Forest Practice Act. What is the program and will it do the job that's required? Let's have a look:

New York's Forest Practice Act program was established by law in 1946. It is a "grass roots" program, enabling the Conservation Department to render technical forestry services to co-operating *private* woodland owners. These services include giving advice on forest management; reforestation; marketing; marking mature timber for harvesting; marking immature natural stands for improving growth, composition and health; and marking plantations for thinning and pruning. Sample services may, of course, be given to owners other than co-operators. These services then are exactly what we need to do the work which was discussed before.

What progress then has been made during the first ten years of the life of the program? In order to show our progress we have compared the units of work completed with the total workload facing us and have expressed the accomplishments in per cent of the whole. To review the situation we have 12 million acres of commercial forest land owned by some 255,000 private owners. Now let's look (*see Table* 1) at the impact made by FPA on the total job in the State during the period 1946-1956:

After you have studied these figures you can see we have made a good beginning but much more must be done if we are going to meet the demands of an ever increasing population. Predictions indicate that our population will be about 25 per cent greater by 1975 than it was in 1955 and about 70 per cent greater in 2000 than in 1955. Forty-five years is a short time in the life of a tree!

In conclusion, I feel that the FPA program must be accelerated during the next decade to a point where our accomplishments will be doubled over those of the first ten years. Ways and means will have to be found to inspire a greater number of private woodland owners to practice good forest management. Such management must include investment in the cultural operations which are so necessary in immature stands, and continuance of reforestation efforts. These ways and means may include additional incentives and a more active information and education program combined with an increase in the number of service foresters required to give the public the degree of assistance which it demands.

For those of you who would like to know more about the Forest Practice Act program and are interested in obtaining the services offered, please direct your inquiries to the District Forester in your area of the state:

District	*District Forester*	*Address*	*Counties Serviced*
1	R. M. Hick	140 Main St., Oneonta	Delaware, Otsego and Schoharie
2	C. E. Baker	15 So. Broad St., Norwich	Broome, Chenango and Madison
3	J. D. Kennedy	21 Clinton Ave., Cortland	Cayuga, Chemung, Cortland, Tioga, Onondaga and Tompkins
4	C. B. Kresge	5 E. Steuben St., Bath	Allegany, Livingston, Monroe, Ontario, Schuyler, Seneca, Steuben, Wayne and Yates
5	E. J. Whalen	335 E. 3rd St., Jamestown	Cattaraugus, Erie, Chautaqua, Genesee, Niagara, Orleans and Wyoming
6	F. E. Jadwin	Box 31, Lowville	Jefferson, Lewis and Oswego
7	H. N. Bradford	79 Main St., Canton	St. Lawrence
8	A. J. Woodford	270 N. Main St., Herkimer	Herkimer, Montgomery and Oneida
9	W. E. Petty	Ray Brook	Clinton, Essex and Franklin
10	M. C. Fisk	Northville	Fulton and Hamilton
11	S. M. Farmer	Box 751, Lake George	Saratoga, Warren and Washington
12	C. P. Fatzinger	Box 430, Catskill	Albany, Columbia, Greene, Rensselaer and Schenectady
13	S. G. Bascom	2 South St., Middletown	Orange Rockland, Sullivan and Ulster
14	E. D. Brockway	2 Cannon St., Poughkeepsie	Dutchess, Putnam and Westchester

Table 1

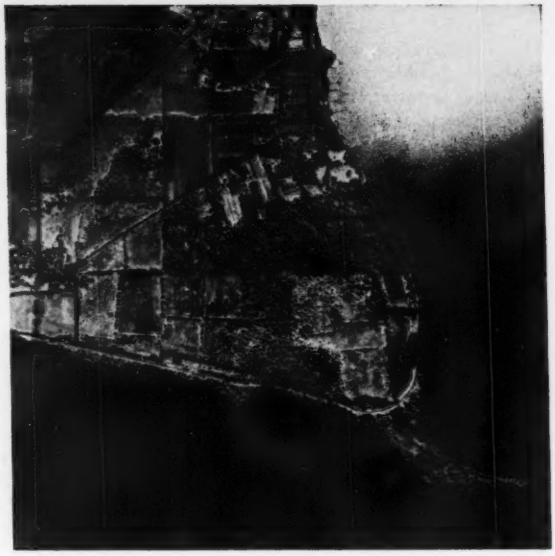
Progress Under F.P.A., 1946-1956

		Units of Progress	*Percentage of Total*
1.	Owners given service	32,000	12.5
2.	Acres involved in service	2.4 million	20.0
3.	FPA co-operators signed up	5,221	2
4.	Acres under FPA	1,394,895	11.6
5.	Timber marked against total harvested in State	12 million cu. ft.	.7
6.	Timber harvested under improved practices against total harvested in State	24 million cu. ft.	1.4
7.	Stumpage received under FPA against total received in State	$4.7 million	4.7
8.	Acres of forest improvement work	19,769	.16

State Parks — Western Frontier

by Leonard L. Huttleston,
Assistant Director, Division of Parks

This—following our introduction to the state park system in The Conservationist *for August-September—is the first in our parade of the parks: The Allegany and the Niagara Frontier. —Editor*



Long Point on Chautauqua Lake; new State park on one of New York's finest lakes

THE state parks in the extreme western and southwestern part of New York are supervised by two regions, the Allegany and the Niagara Frontier, each administered by an unpaid commission of seven members, appointed by the Governor with consent of the State Senate, for seven-year overlapping terms. This area of New York contains the State's second largest city, Buffalo, and nearly 10 per cent of the State's population.

The State that has everything must by definition have contrast and Western New York state parks prove the point: In this five-county area are the State's oldest park, Niagara Reservation, and the newest completely separate state park recently acquired and still undeveloped—Long Point on Chautauqua Lake. It has the largest state park, Allegany, with nearly 60,000 acres; and by ruling out a few small islands and battlefields that are really not parks, the smallest park—eight acres at Lewiston Heights below Niagara Falls. It has a park of great historical interest at Fort Niagara.

By any standard, the State Reservation at Niagara heads the list in importance. Unlike the typical pattern of New York state parks, many of which are partially "created" recreational areas located deliberately with respect to population, Niagara Falls is where God put it and the world's people jolly well can, and do, beat a path to its grandeur. Other waterfalls have been discovered, but Niagara rolls on disdainful of competition. It is not surprising that, annually, its 4,000,000 patrons place the Falls second only to Jones Beach in attendance and include visitors from every corner of the world.

The park system is proud to have the Falls. It took vision and courage in the 1880's to stand firmly against the tide of exploitation and fight for the natural preservation of the Falls area. It has required more of the same, plus vigilance and persistence, to forestall vast dilutions of the public interest at the Reservation.

With all this vigilance, the State Reservation at Niagara left much to be desired, at least up to now. The reserved areas were pitifully small. The Reservation itself is a strip about eight blocks long and scarcely a hundred yards wide, wedged tightly between downtown Niagara Falls and the gorge. Only adjacent Goat Island contained any substantial area. All of the frontage on the broad reach of the river above the Falls had been taken over by industry, mostly chemicals. Downstream in the gorge, there were small overlooks at Devil's Hole and Whirlpool but nothing else open to public access. Interconnecting highways were obsolete and congested.

Given such tiny areas, an inadequate system of connecting highways and vast crowds, economical, attractive and orderly upkeep and operation were virtually impossible. Compared to our Canadian neighbors who had the forethought to apply a portion of their revenues from Falls-generated power to their park system, New York State presented somewhat of a down-at-heel setting for its share of this wonder of the world, and a goodly number of American-side patrons took the trouble to write State officials about it every year, often with eloquence and nearly always justifiably.

While a great spectacle for New Yorkers and the world, it soon became apparent that the Reservation areas were not suited to the pattern of recreation that began in the 1920's, when America got on wheels and began looking for sun, shade and fresh air, outdoor recreation in every form, by the week, the day or even an hour. To fill this need, the Niagara Commission acquired Beaver Island State Park on the south end of Grand Island in 1931, and has developed it as a high capacity day-use area along with the beginnings of a parkway system which links the park to the two Grand Island bridges.

More recently, in 1952, the Commission acquired Evangola State Park on Lake Erie, about 25 miles southwest of Buffalo. It has been open for three years and the first stage development is now complete. Its main attraction is nearly a mile of good and usable beach, easily accessible from the Buffalo area and aimed particularly towards the rapidly growing suburbs and communities south of Buffalo.

None of this helped the problem of the State Reservation at the Falls. At long last, however, a solution is in the making and visible progress is now apparent. It is no miracle but a little luck was needed, along with such apparently unrelated factors as a treaty dealing primarily with water diversion for power, a hydro plant destroyed by a landslide, the providential circumstance of one man holding exactly the right two jobs at precisely the right time, and some sharp infighting and sharper language along the way.

This boost to the Niagara Frontier, especially its parks, is coming about through co-operation with the Power Authority of the State of New York. The treaty of 1950 between the United States and Canada made additional water available for power. A long-drawn and vigorous fight between State, Federal and pri-

Above: Flags flying at old Fort Niagara. Left: Observation tower under construction at Falls—Niagara Reservation

vate interests for the right to develop the added power ended early this year, when the Federal Power Commission confirmed New York's claims and granted a license to the State Power Authority. The Chairman of the Power Authority is Robert Moses, who has also been Chairman of the State Council of Parks since its formation in 1924. Under his leadership, there has never been any doubt that the power development should be closely related to and should assist in the overhaul of the Falls and gorge area for public use and benefit—in fact, the Federal legislation directing the power license specifically authorized the use of power development funds for scenic restoration and recreational benefits.

The State itself, through the State Council of Parks and the Niagara Frontier Commission, is making major improvements integrated with the power program. The whole list of benefits to be derived is too long for this article. The largest project will be the Niagara Parkway from North Grand Island bridge to Fort Niagara, flanking the power intake, connecting to the Reservation and Rainbow bridge and going over the new powerhouse at Lewiston. The first section will be on entirely new right-of-way consisting of rock spoil from the power tunnels, placed offshore of the existing river bank and thus providing a scenic approach to the Falls area to replace the noisy, congested and odoriferous access via Buffalo Avenue.

All major projects will be finished within three years. To those who have never been to the Falls, it will be worth seeing. To those who now know the American side of the Falls, it will be a major miracle, for it is one of the outstanding overhaul and face-lifting jobs of our time. The Falls won't change but the approaches and vantage points will be a new experience, especially the new tower at Prospect Point providing an elevated observation point as well as modern elevators down to the gorge.

Allegany Region

The Allegany Region may have no spectacle to match Niagara, but it has interests all its own. It is rugged scenic country, centered around a three-way drainage divide separating the headwaters of the Mississippi, Susquehanna and Great Lakes basins.

The principal area is Allegany State Park in the approximate center of the three-county region and joining Pennsylvania on the south. Farther from urban centers than the average state park, it has been developed and used to capitalize on its advantages of great size, location and topography. It contains nearly half of the 800 vacation cabins in the state parks system, and with considerable group camping for youth as well as family tent and trailer areas, it constitutes by far the largest camping facility in the state park system.

With its elevation and variety of slopes, it is also developing into one of New York's major Winter sports areas. Lodge and cabin quarters are available.

Allegany is also one of the few state parks where hunting is permitted. Generally the state park system has maintained a firm policy of treating the parks as refuges, and prohibiting the use of firearms. The huge area of Allegany, along with many other factors, made the maintenance of such a strict prohibition impracticable and the park is open to limited hunting under permit from the Commission.

The Allegany Commission also operates Lake Erie State Park on the Lake shore near Dunkirk. It serves local day use and, as the first New York State park encountered by interstate travelers eastbound, has been provided with as much camping facility as its area permits.

For the future as well as the present, more public frontage on New York State's many lakes is a vital need. An excellent opportunity of this nature arose two years ago when Mr. and Mrs. John F. Minturn offered their estate at Long Point on Chautauqua Lake as a gift to the State for park purposes. This fine offer was gratefully accepted and immediate steps taken to purchase sufficient additional land to insure good access and prevent undesirable encroachment. Comprising the entire point, it provides over a mile of good water front on Chautauqua Lake for future park development.

This acquisition is a good example of a trend that is becoming increasingly important in the plans of the State Council of Parks. A basic part of the Council's policy has been to complete substantially the development of existing parks before assuming the obligations, money and otherwise, of new acquisitions. This is still sound policy, but the explosive growth of population, traffic and suburban development calls for sensible adjustment. The Council is on constant alert for future areas by gift, transfer, purchase or any reasonable means, for either present or future development, before inexorable growth has made such areas unobtainable by any practical means. We see this program as vital in maintaining the balanced development of our State and to afford our ever-increasing population with essential recreational opportunity.

Wayne County Sportsmen –

A Co-operative Program

IT'S nothing new for organized sportsmen to work closely with the Wayne County Soil Conservation District in New York State. They've been doing that for ten years. They learned in 1948 that sportsmen and farmers co-operating with their soil conservation districts have much in common.

What's new, perhaps, is that the common tie of conservation is continually binding them closer together. And, of course, everyone gains—the farmer, the sportsman and especially the public. Farmer-sportsman co-operation means the preservation of attractive rural scenery, more joy-giving songbirds, cleaner streams and lakes, more recreational areas, better hunting and fishing.

It has got to the point now where the sportsmen are helping co-operating farmers financially. And, through the Wayne County Soil Conservation District, the sportsmen have received financial help for some of their club projects.

Exhibit 1—In Wayne County today are two fine farm ponds that the Wayne County Federation of Sportsmen's Clubs helped pay for. And there were no strings attached. All the Federation asked was that no hunting be allowed within the pond areas. More about that in a minute.

Exhibit 2—Through the Wayne County Soil Conservation District, the Wayne County Board of Supervisors granted $900 a year for three years to the Sodus Rod and Gun Club toward its planned efforts to increase the pheasant population of the area.

It was in October of 1957 that Fay LaRock told the Wayne County Soil Conservation District directors some good news. The Federation had $500 it could use to help co-operating farmers who needed ponds as part of their co-ordinated soil conservation programs. LaRock, a former president of the Sodus Rod and Gun Club and of the Wayne County Federation, is a Councilman of the New York State Conservation Council. The directors gave him the names of several farmers. After looking over all their plans, he chose the farms of Karl Horch of Lyons and Paul MacInnes of Ontario. The Federation divided the $500 about equally between the two farmers.

Soil Conservation Service technicians chose the sites, designed the ponds and supervised construction. Early in 1958 the ponds were full of water, ready to serve the farmers' practical needs.

This is what Karl Horch says about his pond: "I'm a dairy farmer. So naturally I need a lot of water. I spent $1,300 drilling a well. All I got from the well was 20 gallons a day during September and October. I had to haul water and you can imagine what a job that was. Now, with this pond I have all the water I need for all my farm operations. And by the way—I now have plenty of water in the well, too. I believe the pond has raised the water table."

The provision against hunting in the immediate pond area goes back to 1948. In that year the Sodus Rod and Gun Club set out on a program that it hoped would increase the area's permanent pheasant population. With the backing of the Wayne County Federation of Sportsmen's Clubs, it launched its ambitious propagating project. It reared 1,200 birds a year. It conditioned and hardened them over the Winter for release in the Spring as mature birds, ready to lay eggs.

The club faithfully carried on this project for three years. Its work is considered outstanding in New York State. Two directors of the Wayne Soil Conservation District are county supervisors. As district directors they knew of the club's sustained work and its active interest in all conservation. They told the County Board of Supervisors about the club's work. Result: The supervisors voted the $900 annual grant to help the club with its pheasant project.

To protect the investment and to insure the project's success, the Sodus Rod and Gun Club laid off a four square-mile area around the pheasant rearing pens. It then obtained agreements from the 50 landowners in the locality to refrain from hunting and to post their land against hunting. At the end of three years the mission was considered accomplished. As an outcome of this project, the club selected the Horch and MacInnes farms as two areas in other parts of the county. Its goal there is to make environmental conditions suitable for pheasants and migratory birds. Habitat planning was part of the pond deal on the two farms. The plan included a 20-foot grass strip all around the water surface, then four rows of wildlife shrubs and, around the outside, two rows of evergreens. This arrangement provides both shelter and food for wildlife.

Fay LaRock [seated], Wayne Co. sportsman, selects farm pond site with Mel Thompson and Harry Sergeant of the SCS.

Karl Horch, right, Wayne County farmer, discusses wildlife planting around his new pond

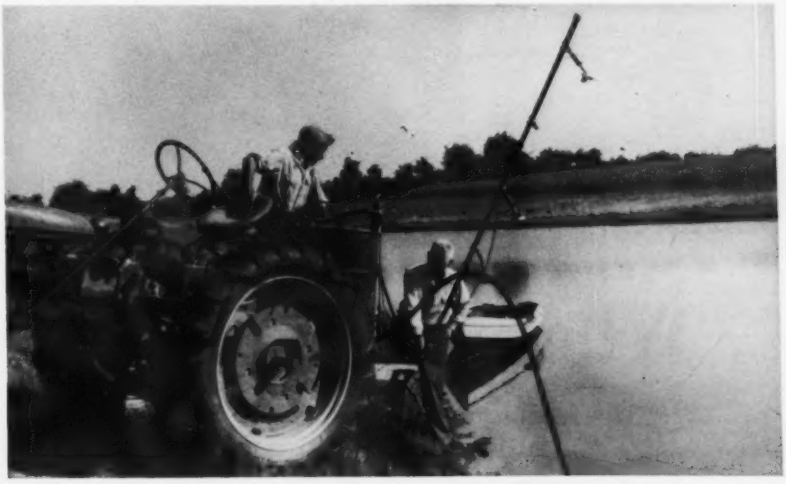
Recently the Sodus Rod and Gun Club joined with the Soil Conservation Service in carrying out a bit of trial planting. The club planted common bladder-senna and sawtooth oak on its farm to find out what if any wildlife value they have in northern New York. Club members and SCS technicians are keeping tabs on results.

All of this profitable co-operation started back in 1948. That was the year

— and the S.C.S.

in Grassroots Conservation

by Samuel L. Braucher, *Soil Conservation Service*



Pond owner Horch, on tractor, fills spray tank from his farm pond that sportsmen helped pay for

Sportsmen and SCS men look on as Horch and his son stock pond with bass fry

that LaRock asked the Wayne County Soil Conservation District for help in preparing a conservation plan for the Sodus Rod and Gun Club's farm. LaRock was then club president. At the district's request, Soil Conservation Service technicians mapped the soils of the club's farm. With the soils map as a basis, they helped the club prepare a conservation plan. That plan, plus the club's active interest in agriculture and especially soil and water conservation, won an award at the National Sportsmen's Show in New York City in 1950.

That award really started things. Member units of the Wayne County Federation of Sportsmen's Clubs became actively interested in the soil conservation district and what it had to offer in the way of help. Officers of the federation and of the separate member clubs started inviting district directors and SCS technicians to their meetings, a custom still followed. The directors pitched in and helped the sportsmen form the Ontario Rod and Gun Club. The new club quickly entered into an agreement with the district to apply a co-ordinated conservation plan to its 50-acre farm.

The conservation plan on the Sodus Rod and Gun Club's 29-acre farm was drawn up mainly with wildlife propagation and education in mind. The basic plan called for 16 acres of contour farming, 16 acres of cover cropping, five acres of tree planting and a quarter mile of diversion ditches to carry excess water off safely. The plan also included windbreak planting, 3,500 feet of wildlife hedges and 800 feet of farm roads built in such a way as to avoid erosion. The plan is reviewed regularly and brought up to date whenever necessary.

Plan refinements have included 800 feet of tile drains and 750 feet of hedgerows.

The club draws on many sources for information and on-site help in the advancement of conservation. New York State Conservation Department Game Managers and other technicians work with the club on techniques concerning habitat improvement, propagation and predator control. The Extension Service assists with educational matters. In fact, all the agricultural agencies of the county co-operate with the club. That's because of the club's interest in agriculture and its policy of improving wildlife through proper use of the land.

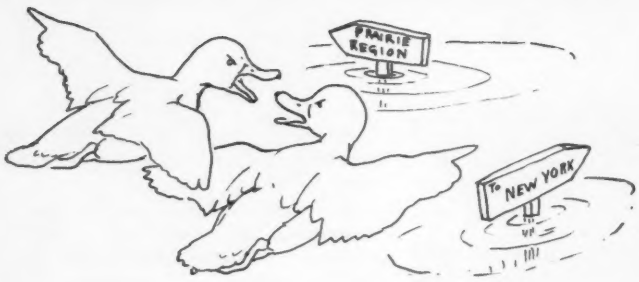
In return, the club sponsors the attendance of 4-H Club members at conservation camps. It shows motion pictures and contributes articles on conservation to the newspapers. It encourages farmers to co-operate with all agencies in carrying out conservation programs. It conducts farmers and others around its farm to show the value of conservation farming.

LaRock, who has been in the midst of all this down the years, sees definite values in farmer-sportsman co-operation. He sums it up: "Because of the common interests of farmers, the public and sportsmen, it is important that all of us understand the problems of the others, respect their rights and co-operate with one another to bring about the proper use of all resources in the interest of all."

Harry Sergeant, a director of the Wayne County Soil Conservation District, goes along with LaRock on the importance of understanding and co-operation. He adds: "To get more ponds that can serve wildlife, we must show farmers that farm ponds have multiple uses. They serve the farmer as well as wildlife. It's good farm economics to have plenty of water when and where it's needed."

We are happy to report, too, that the "fever" is spreading. Today six sportsmen's clubs in Wayne County have district conservation agreements on their farms. Their farms total 188 acres. In addition, farmers of the county are including more wildlife practices in their conservation programs.

All this means more and better wildlife for the Empire State. But the greatest benefit of all is the genuinely cordial and mutually-helpful feeling that has developed between farmers and sportsmen.



Where is home?*

by Dirck Benson, Don Foley and Lee DeGraff

Redheads—normally very smart birds—

are a little confused these days

but it's all in the interest of better hunting

BACK in 1952 the Department obtained some Canadian Redhead duck eggs from the Delta Waterfowl Research Station in Manitoba and flew them back to New York for incubation. Some of the resulting birds from these eggs were released that Summer; the remainder held to develop breeding stock. But Redheads are not the simplest creatures to handle in captivity and it was not until 1957 that an adequate breeding stock had been built up to provide a surplus for further release studies.

During the Summer of 1957, some 260 young birds were liberated at five to six weeks of age. Others were held over Winter and 75 pairs were released this past Spring. This year (Summer of 1958), releases totalled 431 young.

Prior to being freed in the wilds of New York, the young Redheads had spent all their short lives at the Department's Howland's Island Game Management Area—some three weeks of it in a brooder house and the rest on a fenced rearing pond. Their parents and grandparents, whom they never knew, also had spent their lives under game farm conditions. Their grandparents' only flying experience had been the airplane trip from Delta to Delmar while still unhatched. Their parents were even more earth-bound; they had never flown at all!

This Summer's releases were made during August and September at the Oak Orchard Game Management Area in Western New York, Perch River Game Management Area in Northern New York and at the Three Rivers Game Management Area in Central New York. These points are more than 300 miles south and 1,000 miles east of their ancestral Canadian prairie haunts. Five weeks later the fledgings were trying their wings, exploring the marsh, practicing take-offs and landings and hobnobbing with other ducks on the area.

But where was home? Would they return to the marshes of Manitoba; to their birthplace at Howland's Island or these marshes where they had spent their youthful weeks prior to flights? To find out, all these young Redheads are banded so that returns over the years will give the answer.

Early Returns

Meantime, some of us are impatient. We want to plan our program for coming years. Also we want to anticipate what we may find in the marshes in the coming Springs. The releases were made under the supposition that the majority of the young Redheads that survived to migrate and evaded the wily gunner, wintered successfully in warmer climes would, come Spring, return to the marshes where they had learned to fly. What indications do we have that this may be a logical premise? Some 65 band recoveries have been received thus far from the young Redheads released during the Summer of 1957. Certainly, these early season band returns hardly seem to fit the picture we have so hopefully painted. On the contrary, they suggested that these birds hardly knew what they were doing — many were taken locally but others flew to all points of the compass.

Two were shot on October 30, 1957 at Lac Piche, near Malartic, Quebec some 550 miles almost due north of their release point at Oak Orchard. The most southerly recovery was in Currituck Sound, North Carolina on December 7.

*This article is based on studies conducted by the Conservation Department under the P-R Federal Aid in Wildlife Restoration Program.

Redhead profiles — drake, left, hen below

The most westerly recoveries were two birds shot at Long Point on the north shore of Lake Erie. This is in contrast to the 1952 releases which provided several returns from Michigan, Wisconsin, Minnesota and Manitoba. A very good share (45 per cent) of the 1957 releases were taken in New York. Another 45 per cent were recovered to the north and west of our State. Most of these, however, were taken on the Canadian shores of Lake Ontario and the St. Lawrence River which is only a short hop away. One was recovered in Vermont and 9 per cent to the south; mostly in Maryland. Of those taken in New York, over three-fourths were shot within 25 miles of the release points.

But what reasons did we have to suppose that these Redheads would, indeed, return to our New York marshes? First, there is the presumed success of the seven male and 13 female Redheads released in 1952 on the Federal Montezuma Wildlife Refuge. In 1953 and every year since, Redheads have been present as breeders on this Central New York area. But this is only circumstantial evidence. Unfortunately, none of this stock was trapped to check their bands. Also there exists one record of a possible natural brood there in the late Thirties so that these breeders could possibly be volunteers, although this is not likely.

Our second guide to the hoped for behavior of these Redheads is based on comparable but earlier releases in the State of young Mallard ducks. Back in the big duck depression of the middle Thirties the Mallard was a rare breeder in New York marshes. Now it is common and often exceeds the Black, the Wood ducks and the Blue-winged Teal, all of which were present in those unforgotten years. At that time the Department embarked on a Mallard release program using stock which had been held on the game farms and subject to selection since the early '20's by Harry Rogers, first game farm foreman for New York. Some of this stock was released in 1935, but the program did not get going full force until 1938. By that time, Mallard production was adequate to provide stock for Spring breeder and Summer duckling release studies. Like the Redheads, they knew no real home. Their ancestors had come from America's prairie and plains regions, and in most instances had not had freedom of the wing in New York. The adult Mallard breeders had their first experience in free flight some three weeks after liberation when their new flight feathers were mature. The Mallard ducklings, just like the Redheads, were released some five weeks before they were able to fly. One possible difference, however, was that the Mallards were more generations removed from their ancestral home.

And what do band returns tell us about the Mallards? In the first place, out of 861 returns, 82 per cent were recovered in New York, and 66 per cent within 25 miles of the actual release points. That, however, is not the final story, as more than three-quarters of those ducks were shot the first Fall before their southward migration. Of those ducks that didn't get tangled up with hunters or other hazards their first Fall, 45 per cent were taken in subsequent years within 25 miles of their release sites, another 27 per cent elsewhere within the State and only 28 per cent outside the State. In the latter group most of the returns were from wintering grounds to the south. Band return data coupled with records of Mallards observed the following Spring on areas where there had been none prior to release, strongly suggests these ducks returned to breed at the marshes *where they had learned to fly*. Anyhow, Mallards are now a common breeding duck in much of New York and just enough of them have plumage and body characteristics strongly resembling the New York strain of Mallards so that the Department feels justified in taking a bit of credit for establishing them.

Ducks, geese and swans all belong to one big family, but that does not mean they are all exactly alike. The Redhead belongs to the subfamily of diving ducks along with Canvasback, Scaup and others, while the Mallard is in the subfamily of marsh or dabbling ducks as are the Black duck, Teal and other puddlers. Geese and Brant form another branch of the family and one which apparently does not respond quite the same way as did the Mallards. Present indications from Canada goose releases in New York suggest that young geese need leadership for the southward migration. The young, whose parents were penned or clipped, flew freely around home base but did not stray far. Others, where both parents and young were full-winged but where the parents had never previously had freedom, also stayed close to the release area even after the water was frozen. On the contrary, both at Howland's Island and Delmar where moderately large full-winged flocks have been developed, some geese seem to migrate south each year.

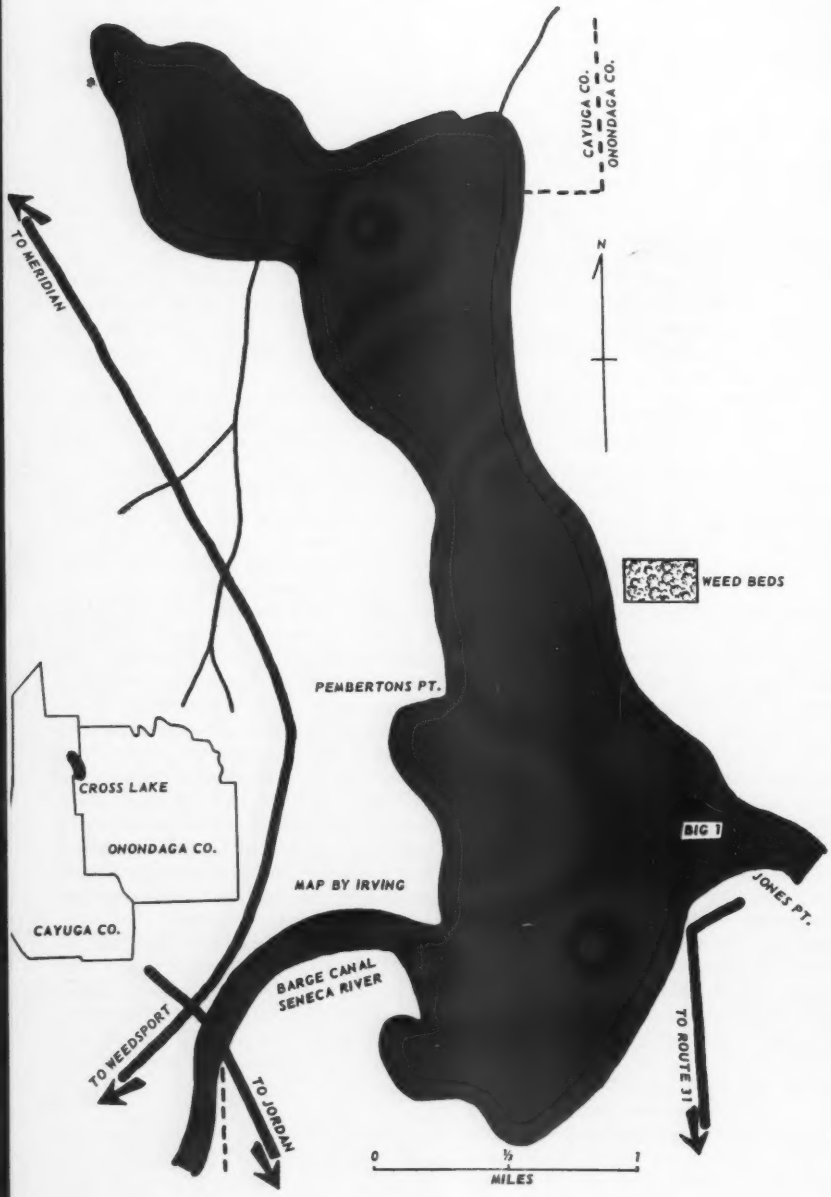
Actual observations to date on the Redhead releases neither confirm nor deny the expected homing instinct. Survival until on the wing of the Redheads released in 1957 was very good. The 60 odd per cent that made it ranged far and wide, as indicated above. But some 25 per cent fell to the gunner even though all were released on refuge areas, and that did not leave many birds to cope with the problems of migration, Winter and the return north. Only four pairs were located this Spring that seemed to be returning stock from earlier release. It is worth noting, however, that the Mallard stocking program did not give overwhelming success initially either. And looking back to the early pheasant stocking, a strong suspicion exists that only occasional release groups made the grade and established the isolated colonies that eventually expanded to give us our successful pheasant population.

So some of us are predicting that the Redheads will respond much as the Mallards did by showing a strong homing instinct to the marsh where they first learned to fly, yet anyone who chooses to make a different guess might be just as correct.

Generally speaking, band returns and other studies have indicated that female ducks have a stronger homing instinct than the male. Pairing usually takes place on the wintering ground or as migration gets underway, and the male tends to go where his lady love leads him. We hope that it is to New York.

Cross Lake

(Cayuga and Onondaga Counties)



Location

Cayuga and Onondaga counties, 2 miles north of Jordan, which is located on Route 31

Physical Features

Area: 1,920 acres
Elevation: 380 feet
Maximum Depth: 65 feet
Length: 4.7 miles
Width: 1.3 miles

General

Boat liveries present, principally along west shore. Permanent homes and Summer camps built near lake. Accommodations available in nearby Towns of Jordan, Weedsport and Baldwinsville. Big Island and Little Island total about 28 acres. They are State-owned and are posted for public waterfowl hunting

Hunting in Vicinity

Ducks—good (black, mallard, teal, wood, baldpate)
Geese—fair
Pheasants—fair
Deer—fair
Raccoon—good

Trapping

Muskrats—good in northwest and south end of lake
Raccoon—good
Mink—fair

Water Characteristics

Oxygen—good for fish life to a depth of 30 feet
pH—slightly alkaline
Transparency—poor
Temperature—deep water during Summer 57-66° F.

Fishing

Winter tip-up fishing permitted, maximum of 10 per person

Species Present

Walleyed pike, white perch, northern pike, largemouth bass, yellow perch, black crappie, channel catfish, bullheads, pumpkinseed, bluegill, carp, longnose gar, gizzard shad, sheepshead, various minnows

Fishing for game species has not been good in recent years. Walleyes, although stocked in moderate numbers each year, provide only fair fishing. The lake produces a large poundage of fish but a very limited amount is harvested

—William F. Shepherd,
Aquatic Biologist

Small Marine Fishes of New York

Part 1–The Forage Fishes

by Alfred Perlmutter, *Senior Aquatic Biologist (Marine)*

ALONG the shores of our marine waters are teeming schools of small fishes, often dubbed "minnows" by the uninitiated. Closer study of these "minnows" would show that actually they consist of many kinds of fishes. Some are the young and adults of resident species which grow to only a few inches. Others are the young of resident species of larger fish of importance to the sport and commercial fisheries; some, though, of no direct economic importance. Still others are the young of tropical species that may have been spawned as far south as the West Indies or off the coast of Florida.

This is the first of a series of articles describing the more important species of these small marine fishes. H. Wayne Trimm (see center-spread) has illustrated several species which are important as forage fishes—food for other fishes.

Common Killifish
(Fundulus heteroclitus)

Perhaps one of the best known "minnows" is the common killfish. This small fish may reach a length of six inches but it is usually less than four inches. It is commonly found in small schools in brackish water along the sheltered shores of our bays and in the tidal creeks throughout the salt marshes; often in areas of heavy concentrations of seaweeds.

Spawning takes place in shallow water during the Spring and early Summer. The eggs are sticky and adhere to each other and to any object nearby. Hatching occurs in from one and a half to two and and a half weeks, depending on water temperature. When slightly less than one inch in length the young look like the parents.

The common killifish will feed on almost anything edible, whether plant or animal. It is extremely hardy, living for a long time in heavily polluted waters where the oxygen content may be very low. Fish stranded in small pools as the tide goes out will bury themselves in the mud should the water evaporate, and in this fashion survive until they are rescued by the next high tide.

The common killifish can be held alive without water for hours if kept damp and cool and will remain active a long time when used on a hook for bait. For these reasons it is in great demand as a live bait in the sport fishery for fluke or Summer flounder and to a lesser extent for snapper (young bluefish). An extensive commercial bait fishery for the common killifish has been developed.

Common Silverside
(Menidia menidia)

Another well known "minnow" is the common silverside, often known locally as the spearing or shiner. This fish may grow to six inches in length but specimens less than five inches are more common. It is generally found in schools of moderate size, mostly composed of fish of about the same length and age, on sandy shores in our bays and along the beaches near the inlets to the bays. The common silverside feeds on small crustaceans, fish eggs, worms and seaweeds.

Spawning takes place from May through July. The eggs are laid along the edge of sedge banks at high tide. Each egg has a bunch of sticky threads and as it sinks to the bottom becomes attached to other eggs or any object in its path.

The common silverside is an important food for many of our predaceous fish. Its silvery appearance makes it attractive to these fish even when it is dead. Large quantities of dead silversides, either fresh or frozen, are used in the sport fishery for fluke and snappers and as with the common killifish, an extensive commercial bait fishery for the silverside has been developed.

Striped Killifish
(Fundulus majalis)

The striped killifish is very much like the common killifish in shape but is more slender. The young as well as the adult males have numerous dark vertical bars on the sides of their body but in females over two inches long these vertical bars are changed into two or three horizontal stripes. For this reason many people have thought them to be young striped bass. Striped killifish are very common on our shores, usually in protected shoal waters on sandy bottoms. This species will reach a length of eight inches but most fish are less than six inches. Spawning occurs during Spring and Summer. It feeds on most small animal and plant life including crustaceans, shellfish, small fish and seaweeds. Although almost as abundant as the common killifish, this species of killifish is little utilized for bait, primarily because it is difficult to keep alive and as a dead bait does not appear to be effective in catching fluke and snappers. It frequently is used to bait crab pots or crab rings in the sport fishery for blue crabs.

Common Anchovy
(Anchoa mitchilli)

The common anchovy is a true relative of the anchovy imported in paste, skinless fillet and rolled caper form from Europe. It is a small fish—less than four inches long and, because of its silvery appearance, is locally called shiner; a term also used in some regions for the common silverside. Large schools are commonly found near the shores but may also frequent open waters over the deeper portions of our bays.

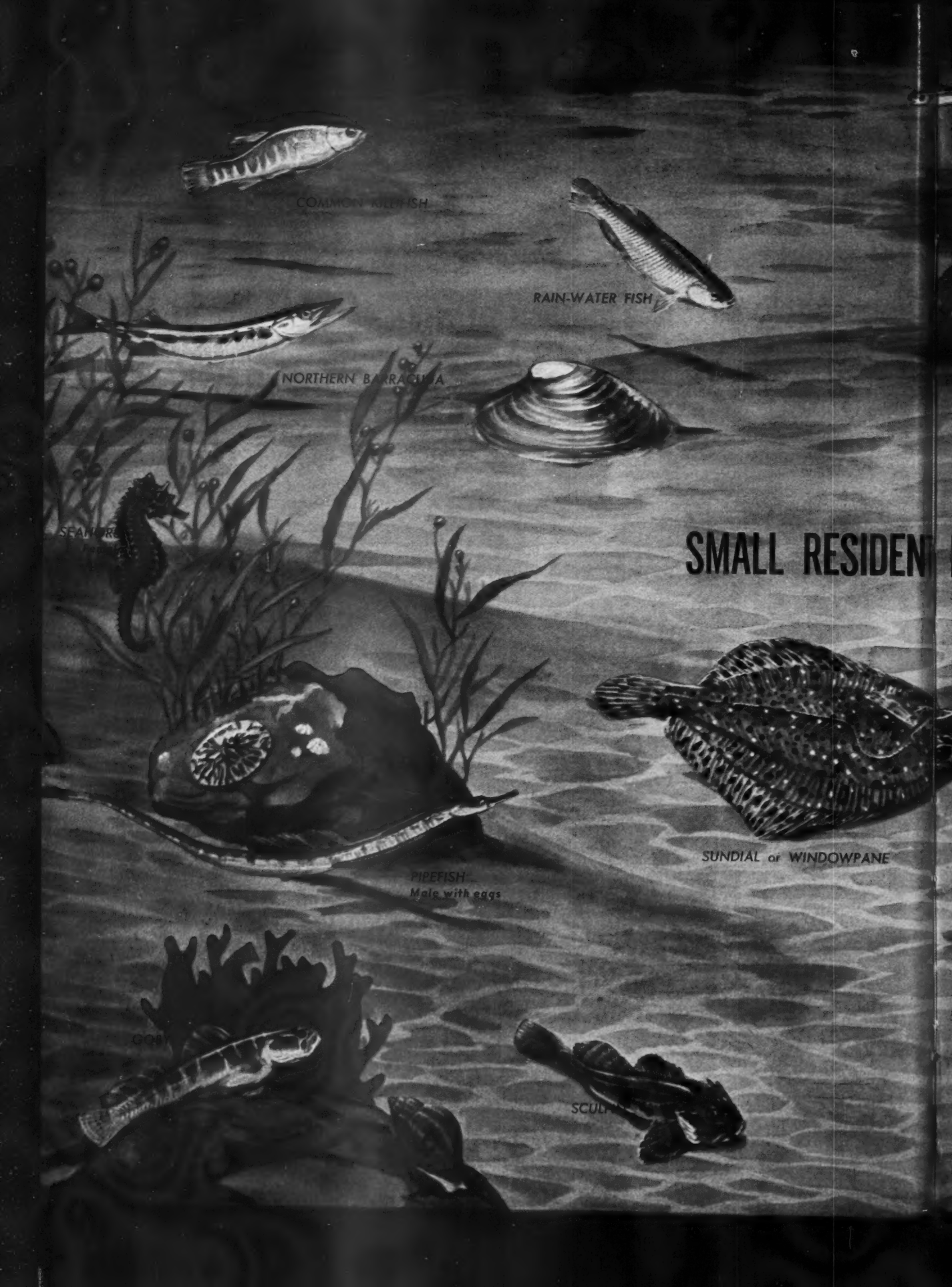
Spawning takes place in Spring and Summer. The eggs do not sink or stick to one another but float freely in the water. The food of the anchovy is mostly animal matter, especially small crustaceans.

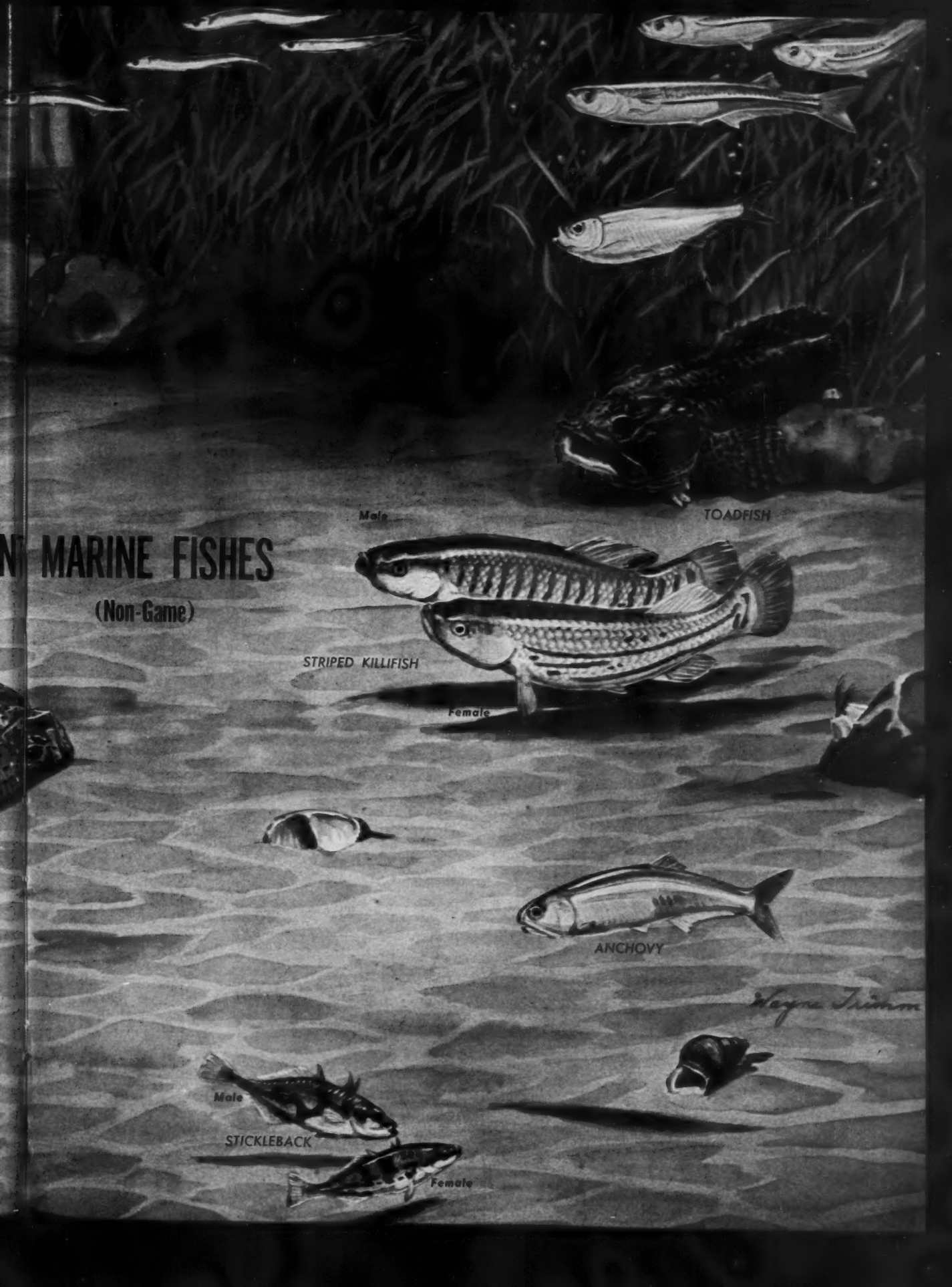
Because of its great abundance, this fish is an important source of food for other fishes. While the anchovy is a good bait for snappers and fluke, only small quantities are used for this purpose as compared to the more popular common silverside.

Sand Launce
(Ammodytes americanus)

Often while boating near the inlets of our south shore bays or along the beaches of Long Island Sound, dark masses of slender eel-like fish can be seen swimming near the surface of the water. These are the sand launce or sand eel. While eel-like in appearance they are not members of the eel family but are an entirely separate family. Although the sand launce may grow to almost a foot in length, most of the specimens seen in our waters are less than five inches. Spawning occurs in Autumn and early Winter. The sand launce feeds mostly on small marine animals. When alarmed it will dart into the bottom sand or mud and disappear from sight. Often when so buried they are left on the beaches or flats by the receding tide and are frequently uncovered, still alive, by clam diggers. This fish is a favorite food of the larger, predatory fishes. Even though the sand launce is an excellent bait for such fish as fluke, snappers,

(*Continued on page* 26)


COMMON KILLIFISH
RAIN-WATER FISH
NORTHERN BARRACUDA
SEAHORSE
SMALL RESIDEN
SUNDIAL or WINDOWPANE
PIPEFISH
Male with eggs


N MARINE FISHES
(Non-Game)
Male
TOADFISH
STRIPED KILLIFISH
Female
ANCHOVY
Male
STICKLEBACK
Female

(*Continued from page* 23)
striped bass and bluefish it is used only to a limited extent as a bait in our waters.

Four-spined Stickleback
(Apeltes quadracus)

The four-spined stickleback is found everywhere in the protected brackish waters of our bays and coastal streams, particularly in regions with dense growths of seaweeds, eel grass or other aquatic vegetation. The fish are small, seldom reaching two and a half inches in length. Spawning occurs in Spring and is an elaborate affair. The male builds a cone-shaped nest, open at the top, out of small pieces of plants. These pieces are cemented together with a sticky material which is secreted from his kidney and extruded from a pore near his vent. After the female is coaxed into laying her eggs, he fertilizes them and then chases the female away. Several females may lay eggs in one nest. The eggs stick to the nest in clumps. During incubation, the male guards the nest and chases all intruders—even fish bigger than himself.

The four-spined stickleback feeds mostly on small crustaceans. It is hardy in the salt water and brackish water aquarium and will live well in fresh water to which a small amount of salt has been added. However, it is very pugnacious and will attack most anything that swims, regardless of size.

Rain-water Fish
(*Lucania parva*)

Although very common in many coves and in the still waters of the salt marshes of bays along the south shore of Long Island, the rain-water fish is seldom recognized. It is a very small species usually less than two and a half inches long. Most frequently it is found in areas containing dense growths of seaweeds or other vegetation. Spawning occurs from Spring through early Summer. It feeds on small animals, especially small crustaceans. The rain-water fish is a hardy species in the brackish water aquarium; is mild in disposition and active.

Naked Goby
(*Gobiosoma bosci*)

Locally common but mostly overlooked is the small naked goby. It is frequently found in the canals and small streams tributary to the bays along the south shore of Long Island. It prefers muddy bottoms in areas with some plant life. Usually it is less than two inches long. Spawning takes place in Summer. The eggs sink to the bottom and stick to each other and to other objects. The naked goby feeds mostly on small crustaceans. Its ventral fins have been modified to form a suction-like cup which enables the fish to cling to solid objects. In the aquarium it will fasten itself to the glass sides by the ventral fins. The naked goby is an interesting and hardy species in the brackish water aquarium.

Northern Sea Horse
(*Hippocampus hudsonius*)

Without question, the sea horses are more familiar to more people than any other species of fish. Their shape, which resembles the knight of a chess set, their ability to grasp and hang on to objects by the prehensile tail and their unique breeding habits in which the male carries the eggs in a special brood pouch until they hatch, have endeared this species to the salt water aquarist.

In our waters only the northern sea horse is present. Some years this fish is common in Summer throughout our bays. It may reach a length of more than seven inches but more often is less than four inches. Sea horses are usually found in heavy vegetation, sometimes hanging on by their tails to rooted plants such as eel grass or they may be floating on the surface grasping detached pieces of seaweed.

The females deposit their eggs on a special pouch found on the ventral surface of the body of the male. The male fertilizes the eggs and keeps them in the pouch until ready to hatch. The newly hatched young are released from the pouch when about a quarter of an inch long and at this time they are very similar in appearance to the parents. Sea horses feed on small animals which they suck into their tube-like mouths.

Northern Pipefish
(*Syngnathus fuscus*)

A member of the same family as the sea horse but far more abundant in our waters is the northern pipefish. This interesting fish is most frequently found among the marine plants and seaweed in our bays, usually in shoal waters near shore but also floating on the surface over deep waters. Unlike the sea horse the pipefish does not have a flexible, prehensile tail. However, in other respects its life history is very similar to that of the sea horse. The male pipefish also carries the eggs in a brood pouch. The young, when released, look very much like the adults and their food is principally small animals. Despite its hard outer shell-like covering, the pipefish is frequently eaten by larger fishes as indicated from examination of stomachs. The blue crab has also been observed eating pipefish. Like the sea horse, the northern pipefish makes an interesting addition to the salt water aquarium.

Northern Barracuda
(Sphyraena borealis)

Seldom seen, except by the startled angler who may accidently catch a specimen, is the northern barracuda. This barracuda may reach a length of somewhat over a foot but in our waters usually is less than ten inches. In some years it is very common. It is found, usually in small schools, along the shores of our bays, most frequently not far from the ocean inlets. Frequently we have collected the northern barracuda along crowded bathing beaches. Despite its ferocious appearance it does not bother man, perhaps because of its small size. However, it is a voracious feeder and attacks schools of small fishes particularly the anchovy and silverside.

Toadfish
(Opsanus tau)

The toadfish may reach a length of 15 inches but those seen are usually less than ten inches. It lives in shoal, quiet water and is common on sandy or muddy bottoms, hiding among the aquatic plants or under stones, shells or other debris. The pier and bank angler often hooks a toadfish and finds it hard to handle for it will snap at his hand while he attempts to remove the hook.

The toadfish spawns in June and July and the eggs are laid on the under surface of pieces of wood, stone, and tin cans, broken bottles and even have been found in an old shoe. One or both parents may guard the nest. The young are similar in appearance to the adults.

This is a tough species which will remain alive out of water for a considerable time. Almost anything edible is devoured by the toadfish. It does well in salt water aquaria, tunneling in the sand under rocks and shells to form a burrow. In the excavation process, small stones are carried in the mouth and expelled outside the hole. The fish usually stays in its burrow with the head facing outward. At the appearance of a potential meal—some crustacean or small fish, it will dart rapidly toward the victim and swallow it whole. Not even a smaller toadfish is safe from this ravenous species.

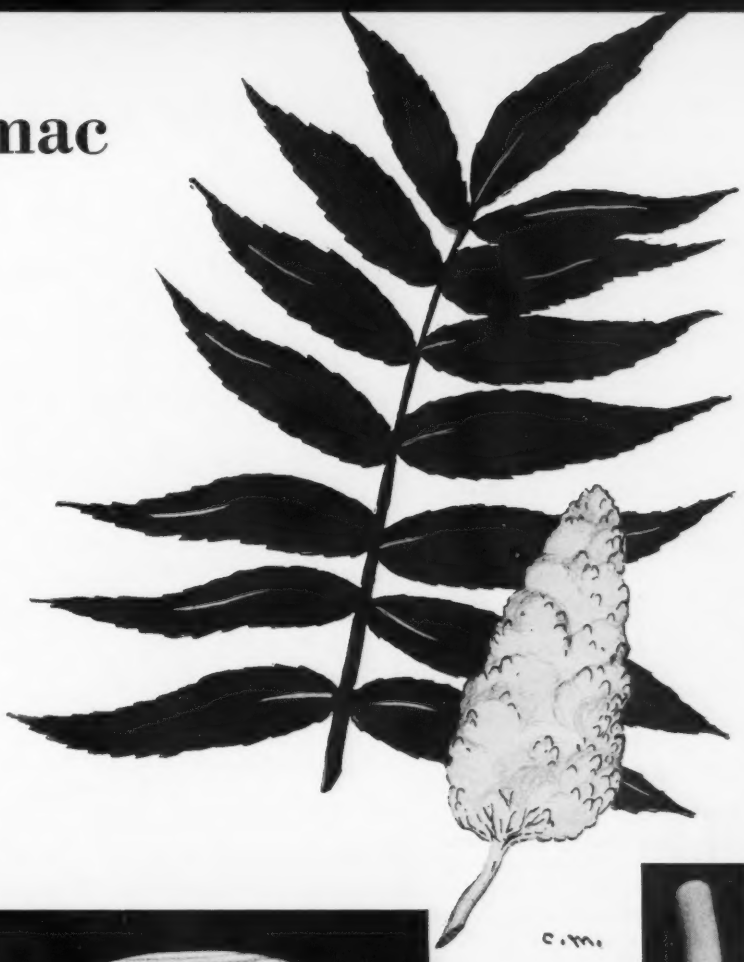
Little Sculpin
(Myoxacephalus aeneus)

The little sculpin is most common in the cooler waters of the eastern end of Long Island both in Long Island Sound and Gardiners Bay. It seldom grows over eight inches and more often is less than five inches. The little sculpin breeds in Winter. The eggs are adhesive and green in color. They sink to the bottom where they stick to each other and to seaweed or other objects. This fish appears to eat

(*Continued on page* 36)

Staghorn Sumac

by Mrs. Robert MacArthur



Above: Sumac. Right: Maple sap spigot. Left: Bowl, turned from sumac, exhibits unique, beautiful grain

MOST people think of staghorn sumac—if they think of it at all—as just a wild bush or shrub, and not a very useful one at that. Actually, however, it is one of America's beautiful small trees and in recent years more and more landscape architects have included staghorn sumac, planted in groups of three or more, in their plans for the landscaping of homes and small factories.

These beautiful small trees are attractive throughout the year. During the Spring and Summer they exhibit many compound fern-like leaves with finely serrated edges. Each leaf is made up of from 11 to 30 pairs of leaflets, medium green color on the surface and a very light green on the underside. In the Fall the leaves turn to soft reds and yellows. The blossoms are large clusters of greenish colored flowers standing upright nine to ten inches high and developing during the Summer and Fall into fruit heads, each head containing 100 or more seeds and each seed enclosed in a crimson velvet wrap. The seeds usually stay on the trees into the Winter, long after the leaves have turned color and fallen to the ground. The species is very hardy and survives the coldest of New York State Winters.

The staghorn is a tree that does not like to grow in the woods, but in clumps at the outer edge of a woods, in fence rows or along the edges of fields. Nor does it like wet places.

The soft and very aromatic wood of the staghorn sumac is of variegated yellows and browns with a little maroon. If a large tree can be found the wood should surely be saved for special woodworking projects such as trays, bowls, plates, etc.

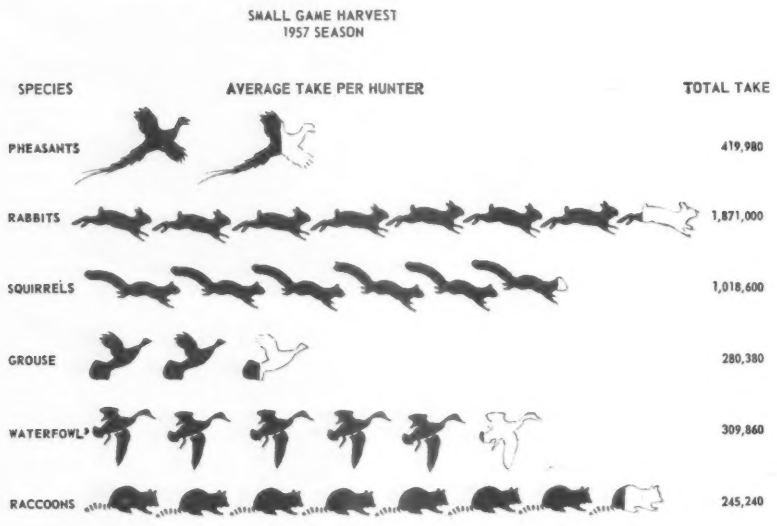
The young shoots or branches of the staghorn sumac were used by the early settlers for tapping maple trees. In the early days pipe or plastic tubing was not available but sumac could be cut to the length desired, peeled, hollowed out and used as a pipe stuck in a hole in the maple tree so the sap could flow through the tap into a bucket.

Staghorn sumac is one of our native species and long before the White Man, Indians were using sumac in many ways. From the berries or seeds they made a drink by pounding them, mixing with a little water and then pouring off this juice, sometimes sweetening it with a little maple syrup. It is questionable how tasty this concoction actually was, since it's believed that they also used it as a mouth wash and gargle. Some of the sumac seeds were dried by the Indians and stored for Winter use. The seeds or berries were also used to make a reddish dye while the wood itself was used to make a lighter colored dye of yellow or tan.

A great many of the wild birds feed on sumac seeds, particularly when more palatable foods are scarce. Mice, too, will eat the seeds when they can get at them and the bark of the staghorn stems or shoots are a major food item for rabbits during the Winter months. In fact, if these trees are to be incorporated in landscape plans, you will find it advisable to protect them from rabbits during the Winter.

There are some 15 kinds of sumac in the United States, staghorn being the most popular. Another variety is the poison sumac. This, however, is not so common in the northern states and unlike the staghorn it likes swampland. One of the distinguishing characteristics of the poison sumac are its *white fruits* or *berries*. Other relatives are the dwarf sumac, a slightly smaller species than the staghorn sumac and the smooth sumac, so called because it does not have the velvety branches and twigs.

Small Game Harvest—1957*



by H. F. Maguire

THE Department's second annual questionnaire poll of small game license holders was conducted during the past Summer. Questionnaires were mailed to 7,200 licensees; 344 of these were returned by the Post Office as undeliverable. A total of 4,827 were returned by hunters actually contacted—a response of 70.4 per cent of delivered questionnaires.

Since we are interested in annual trends in hunter activities and preferences, the 1957 poll was designed and conducted in a manner similar to the 1956 survey. In each poll non-responders were sent two follow-ups urging them to return their questionnaires. The response in both years has been gratifying and we want to take time out right here to express our appreciation.

Total Take, Hunters and Average Take

In 1957 all six tabulated small game species showed decreases from 1956 in number of licensees hunting, in total take and in average take per hunter.

The declines in numbers of hunters was surprising because small game license sales had increased 2.7 per cent—from 552,748 in 1956 to 567,712 in 1957. A number of factors can be assumed to have had a bearing: Economic conditions, somewhat lower game populations and less favorable weather for hunting last Fall. An inspection of *Figure 1* shows that this decline in hunting pressure ranged from 0.9 per cent for pheasant hunters to 18.3 per cent for grouse hunters.

The decreases in hunter take (see *Table 1 pp. 29*) ranged from 1.6 per cent for pheasants to 22.1 per cent for grouse.

Days Afield

The average number of days afield in 1957 did not differ appreciably from that reported in 1956. Squirrel hunters showed no change; rabbit hunters slightly less time afield; and waterfowl, pheasant, grouse and raccoon hunters slightly more time in the field than during the 1956 season.

Age Composition of Hunters

This year, for the first time, we were able to tabulate the ages of hunters re the types of licenses held. It was found that holders of small game licenses only were 32 years old, on an average, while

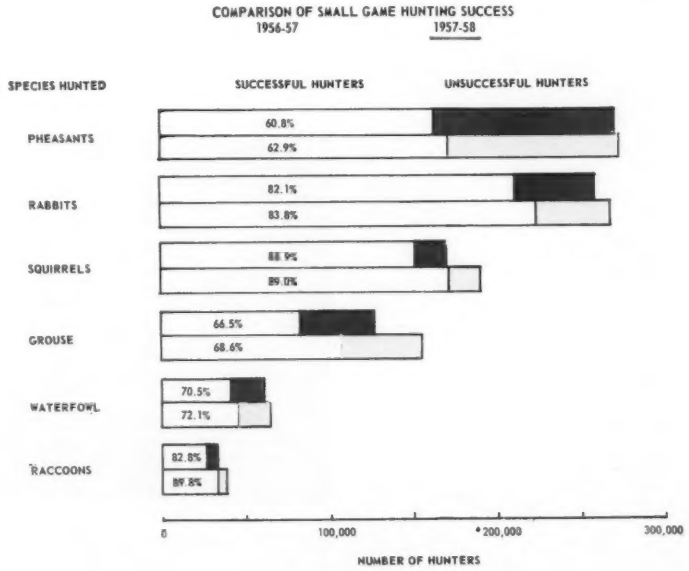


Figure 1

Distribution of Pheasant and Grouse Hunters

Origin of Hunting Pressure	*Pheasant Hunters*		*Grouse Hunters*	
	Number	*Per cent*	*Number*	*Per cent*
Total hunting in State	272,000	100.0	126,980	100.0
Hunted in county of residence only	195,296	71.8	67,299	53.0
Hunted in county of residence and in one or more other counties	30,464	11.2	14,984	11.8
Hunted entirely outside county of residence	46,240	17.0	44,697	35.2
Total hunting outside county of residence	76,704	28.2	59,681	47.0

* This article is based on studies conducted by the Conservation Department under P.-R. (Federal Aid in Wildlife Restoration) Program.

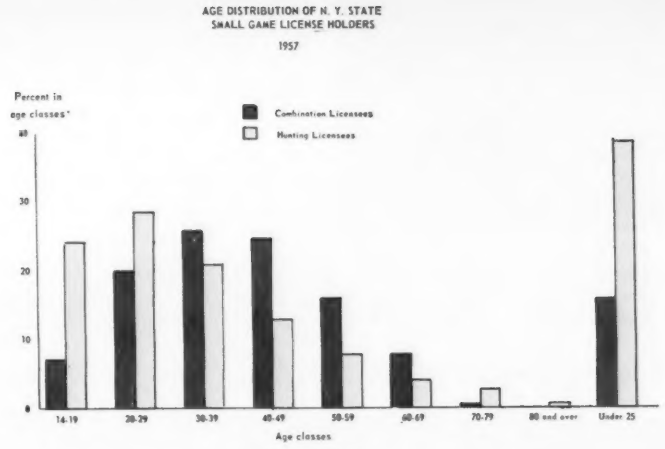


Figure 2

Table 1

Summary of Small Game Take 1957 & 1956

SPECIES	*TOTAL TAKE*		*per Cent Change From 1956*
	1957	*1956*	
Pheasants	419,980	426,890	— 1.6
Rabbits	1,871,000	2,253,000	—17.0
Squirrels	1,018,600	1,250,380	—18.5
Grouse	280,380	359,840	—22.1
Waterfowl	309,860	367,300	—15.6
Raccoons	245,240	299,040	—18.0

combination licensees averaged 39 years old. (see *Figure 2*).

An amusing aspect to the age distribution data came to light when the frequency tables were being tallied; a disproportionately large number of hunters (male!) reported their ages as 39 and and 49. These Jack Bennyish individuals have introduced a slight bias into our age estimates. It's a harmless foible, though—we feel that the minimized ages are cancelled by the occasional exaggerated takes reported.

Not Hunting

For the second successive year, approximately one-third of the license holders in our sample reported that they did not get out during the season to hunt. The percentages not hunting were 34.9 in 1957 and 32.0 in 1956. Spot check telephone calls to licensees in the Capital District elicited a number of explanations for not hunting: No time available; travel; and one licensee informed us that he never hunted—he did a lot of target shooting and wished to have a license when in the field with a gun.

Game Preference

Hunters' choice of small game showed virtually no change from the '56 season. Pheasants were still in first place by a wide margin, weighing in at 40.5 per cent to 24.4 per cent for second place rabbits. Ruffed grouse were third choice among small game hunters, followed, in order, by waterfowl, squirrels, varying hares, woodchucks, raccoons, quail and woodcock.

The numbers and percentages of pheasant and grouse hunters who hunted during the 1957 season within and outside their counties of residence is summarized on pg. 28. Although pheasant hunters outnumber grouse hunters by more than 2 to 1, the numbers pursuing each species entirely outside their counties of residence are nearly equal.

Acorns by Richard Headstrom

AS we follow the woodland path in the Fall of the year and listen to the tattoo the acorns beat upon the ground as they ripen and drop we hardly give them more than a passing thought. Yet these nuts are more valuable than most of us realize.

All of us know they grow into oak trees, whose value we cannot deny, but few of us appreciate the fact that they are rich in carbohydrates, fats and vitamins and therefore a source of food to both man and animals. Long ago the American Indians discovered that the acorns of the white oak and chestnut oak were sweet and edible and stored quantities for Winter use. They also used the acorns of the live oak to "thicken their venison soup." The Indians in California still grind the acorns of the western oak into a meal or flour which they cook as a mush or use in making bread which they bake in rude ovens in the sand.

Apart from their use by the Indians and in spite of what we may think of acorns as food, many of our birds and mammals are in no doubt as to their value. These nuts, as a matter of fact, rank very high, if not at the top of the wildlife food list and for some species form the very staff of life. The acorns of the white oak group are preferred by our wildlife as they are sweet whereas those of the black oak group are bitter; yet the acorns of the water oak, willow oak and pin oak (all members of the black oak group) and often available near ponds and streams are eaten by various species of ducks, especially wood ducks and mallards.

The greatest value of the acorns is probably in the critical Winter season when other foods are scare and whenever the acorn crop is a failure, as sometimes happens, various species of wildlife find it difficult to secure enough other sustenance for survival.

Canada geese approve of facilities at Jamaica Bay

Jamaica Bay Wildlife Refuge

by Edward P. Brady, *Director of Special Projects, Dept. of Parks, City of New York*

ASK any ten people to exactly define a wildlife refuge and chances are you would get ten different answers. One thing for sure, 'though, they all would agree that it would be a sheltered, secluded sanctuary where birds and animals could go about their daily lives unharassed by humans and their civilized ways. Or so they would say—until they had seen the Jamaica Bay Wildlife Refuge. Then they would have to rewrite the book, for this—except for a ban on hunting—fits none of the popular concepts of a wildlife sanctuary.

First shock is that far from being secluded, the Jamaica Bay Refuge is smack in the midst of the world's greatest city; far from being tucked away from civilized ways, it's right on the doorstep of the factories, the offices, the homes—the living and working world for some 10 million human beings. Here, framed by the Boroughs of Brooklyn to the west, Queens to the north, the Rockaway Peninsula to the south and east; practically in the shadow of Manhattan's famed skyscrapers, lies a 3,200-acre complex of islands and water; perhaps the most uniquely situated wildlife sanctuary in the world.

But how did all this come about? To a considerable degree, through the vision and effort of one man, Robert Moses, Park Commissioner for the City of New York. He recognized, some 25 years ago, the potential value of Jamaica Bay as a recreational area for the rapidly expanding City of New York and started the machinery to acquire jurisdiction for the Department of Parks. One thing favored re-establishment of a part of the great bay area as a mecca for wildlife—40 years earlier it had been just that—an unspoiled haven for sportsmen and wildlife. The years had not been kind, 'though, and Jamaica Bay had become a marshy trash disposal center populated by an ill-assorted clan of squatters, eyed, when anyone thought of it at all, as a possible seaport development or, later, as a sewage disposal area for the wastes of the City of New York. The Bay was saved from such ends, however, and by 1950 the Department of Parks had secured jurisdiction over most of the islands and surrounding waters of the area. Progress has been rapid since that time in the restoration of natural conditions to encourage the return of bird and marine life in the interest of conservation and of recreation, too.

Jamaica Bay from the Air. Refuge lies between Idlewild Airport at top; Floyd Bennett Field at bottom

Reconstruction was really in full swing by 1953. A railroad was under construction, using as its bed a hydraulic filled dike crossing the Bay. This was a City Transit Authority project, replacing the old burned out trestle of the Long Island Railroad, which the Authority had acquired. And, a project with a bonus: No funds were immediately available to commence any wildlife improvements; the New York City Transit Authority wanted to dredge fill for their right-of-way, and

Beachgrass was planted to pin down the drifting sand, curbing wind erosion

it certainly wouldn't be cricket to make them pay another city agency for the material. So two birds were killed with one stone—authorizing the Transit Authority to dredge the required fill, if, while they were at it, they dredged an additional 6,000,000 cubic yards for dikes to create the wildlife sanctuary impoundments.

Terns are now common nesters on refugee area

Meanwhile, another phase of the development program was in progress; this one truly a multiple purpose operation which, among other benefits, would establish a 250-acre waterfowl "cafeteria" on Canarsie Pol, a sandy island approximately a mile off shore in Jamaica Bay. This operation involved the construction of a pipeline from the city sewage treatment plant at Hendrix Creek to carry digested sludge under Jamaica Bay to the off-shore island. Here, the treated sludge would be mixed with sand for a top-dressing on the island—a perfect soil for planting with grains and green feeds for the ducks and geese. This was truly a co-operative project—City, Federal and State—in which everyone gained. The State Conservation Department and the Federal Fish and Wildlife Service were interested and co-operated under a P.-R. Federal Aid in Wildlife project. Commissioner Moses requested—and got—$55,000 in the Park budget for this phase of the development. He got even more in terms of publicity—most of it, describing this program as "strictly for the birds!" Sure enough, it is for the birds and, as foreseen, for the taxpayer, too. The pipeline has been in operation now for two years, plus, and already has saved the City of New York more than $200,000—the cost of disposal of sludge far out in the Atlantic Ocean.

By November of 1953 the dikes were completed and the sanctuary areas flowed, but wind erosion posed an immediate and a serious threat to the dikes. Something had to be done to stabilize the sand. With the co-operation of a farm equipment dealer, a three-row cabbage planter was modified to accept and plant beachgrass clones. While one group of employees pulled, separated and trimmed the clones of beachgrass at a nearby site where this grass was growing in profusion, another parka-clad crew huddled together under a canvas shelter mounted over the planter and fed some 1,500,000 clones into the machine. In all some 30 or more acres were so planted, the rows being 18 inches apart and the plants 6 inches on centers. We had won our battle against the wind; no sand was lost. Today, five years later, we are thinning out in some locations the lush growth obtained from this initial planting.

The beachgrass planting was followed the next season by setting of willows and other small trees and shrubs including *Elaeagnus*, *Rosa rugosa* and *Aronia* as the main plantings for land birds. Widgeon grass and sago pondweed plantings for waterfowl have been growing successfully in the impoundment. The salinity level of the diked pond has been sufficiently reduced to permit these and other plants to grow successfully. A nursery has been established at the sanctuary where seedlings and cuttings are being grown for transplanting around the impoundment.

On top of the dike a bird walk has been constructed. This area currently is open only to those persons who are sufficiently interested in wildlife to have requested a permit to use the area for the purpose of bird study. To date in 1958, approximately 300 permits have been issued, representing well over 1,000 persons. By actual count on one week end day last Fall, 158 persons were bird watching at the same time.

Hunting is prohibited in New York City, and most rigidly enforced in the Jamaica Bay area. The combined services of the local Police precincts, the Harbor Division and the Aviation Bureau are available at all times.

As far back as the Spring of 1954 during the nesting season, extensive heron rookeries and several tern nesting areas were noted on the newly-formed impoundment dikes. Throughout the season at the Refuge, it is now possible to observe at varying times well over 100 species of birds. Noteworthy are snow, blue and Canada geese. Brant are coming in ever-increasing numbers (see 2nd cover painting, this issue). Florida gallinules have nested and two successful broods of five have been observed. Five broods of ruddy ducks, one brood of shoveler ducks and one brood of blue-winged teal have been reported. There were well over fifty broods of black duck, a good collection of shore birds such as marble godwits, Hudsonion godwits, ruff, ibis and the usual expected numbers of ruddy turnstones, knots, willetts, stilt sandpipers and so on. Extreme success with terns, least and common species, together with skimmers nesting on the westerly impoundment, is reported. Snowy and American egrets have been successfully nesting at the sanctuary for the past three years, in numbers.

In continued co-operation with the U.S. Fish and Wildlife Service and the N.Y. State Conservation Department, over 2,000 ducks have been banded by Park Department personnel during the past two seasons. Some of these ducks have been reported from as far as Fort Churchill, Manitoba and Hudson Bay. Others have been reported from Ontario, Canada; Saginaw Bay, Michigan; Bakers Brook, Newfoundland; Lac Manuan, Quebec, and from Maryland, Pennsylvania, New Jersey and the New England states. One duck that was trapped for banding at the Jamaica Bay Sanctuary had been banded earlier the same day at Tuckerton, New Jersey.

The Jamaica Bay Wildlife Refuge and Sanctuary is administered by the Executive Officer of the Department of Parks through the Director of Maintenance and Operation and his staff. A qualified employee of the Department has been designated as Superintendent of the Refuge, and he is assisted by a complement of three regular employees on a year-'round basis, supplemented during the Summer months by two or three seasonal employees. A cottage has been erected for the Superintendent which also includes the office for this facility. A work and patrol boat have been acquired.

Future development work in the wildlife area will be of such character that natural conditions will remain. Currently, it is contemplated to install benches along the bird walk and to provide additional facilities for the public visiting the area.

The Jamaica Bay Refuge is on Cross Bay Boulevard, just south of the North Channel Bridge. It is easily accessible from the parkways of Brooklyn, Queens and Nassau counties.

We hope that you will have an opportunity to come and visit this unique wildlife sanctuary. This, we believe, is an outstanding example of multiple use conservation. As Commissioner Moses puts it: "The Jamaica Bay region presents today a dramatic example of realistic planning for the future of New York. We have begun here a co-ordinated program of conservation, reclamation, housing, transportation, sewage disposal, recreation and many related and incidental public works."

Return of a Native

The Wild Turkey Digs In To Stay

by Charles Mason, *Game Research Investigator*

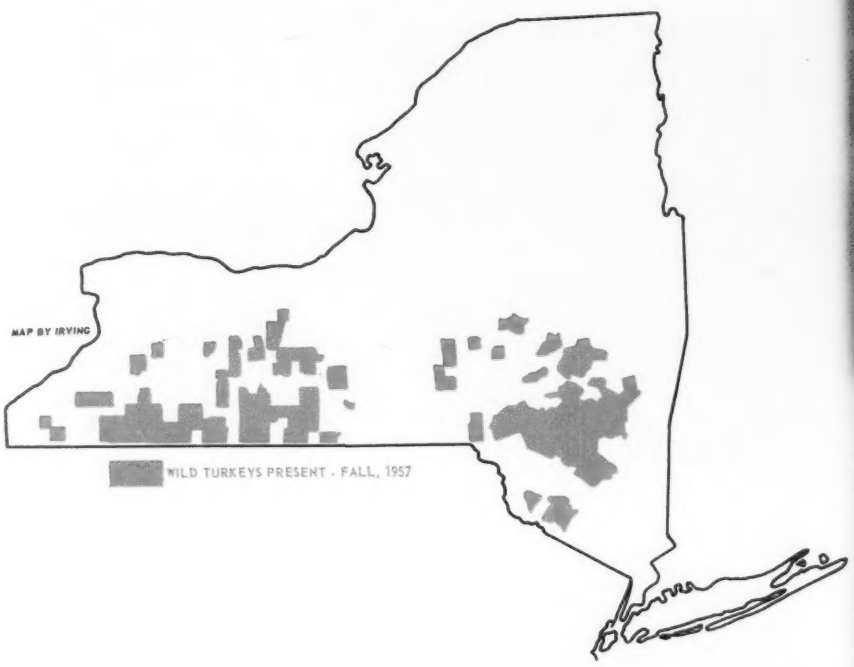
IN Colonial times, wild turkeys "abounded" throughout most of the lands and forests that would one day be called New York. By 1844, flocks remained in only five counties along the southern border. Even these few remnants were lost in the next few years. What wiped them out? Some said over-hunting, others blamed disease; evidently it was neither. Apparently the turkeys were evicted—a slow, erratic eviction by axe, by fire and by plow. "Loss of habitat" would be the term of the modern game manager.

Through each of the Northern States the sequence of land clearing was repeated and in each the flocks of turkeys dwindled. Finally, some local naturalist would sadly note that they were gone. For Connecticut this was 1813; Vermont, 1842; Ohio, 1903. In the Commonwealth of Pennsylvania, turkeys also retreated before the tide of settlers but here a few scattered flocks found refuge and clung tenaciously to their ancestral home in the rocky hills of the south-central part of that state.

History does not record the date when New York's last native gobbler sent his call rolling and echoing across some wooded valley. But we can be sure that this turkey chapter ended here sometime before the year 1880 when horsepowered agricultural interviewers recorded the alltime high of New York land in farms. By then, a network of stone and wooden fences veiled the face of more than three-quarters of the State. While some 8 million acres of New York still had forest cover, most were in the higher Catskill country and in the Adirondack mountains where Winters had always been too severe for turkeys. New York's turkey range was gone.

After 1880, plumes of brush smoke still rose from hilltop clearings but now the trend had changed. Each new field was more than matched by abandonment of older farms on other hills. Under the "millstones" of shallow soils, short growing seasons, and often-impassable roads, each year saw more defeated families pack up and move away. Soon the unmowed goldenrod gave way to clumps of sumac, reaching in to hide erosion scars. Next, stands of popple would spring up, soon to be succeeded by maple, ash and hemlock. Within a few short seasons, tall saplings would shade another tumbled down stone fence. During the 70 years between 1880 and 1950, almost 7 million acres of once-farmed land returned to forest in this State.

By the 1930's, the Northeastern States wore a spreading pattern of abandoned lands growing up to timber. Conservationists began to think wistfully of turkey restoration but most soon dismissed the thought. The stands of beech and oaks were still too young for heavy mast crops; without the now-blighted chestnut, how could turkeys make it through the Winter? Only Pennsylvania decided to gamble, perhaps because she held a trump card—the remnants of her native turkey flocks. Here, game men first turned to a trap and transfer program but soon concluded this was too slow in view of the thousands of acres in the state that then appeared suitable for turkeys. So they switched to propagation, developing an almost-wild strain that could be propagated in large numbers. Then, to hedge their bet, they backed up the turkey stocking with a Winter feeding program.



By the '40's, Pennsylvania's turkey stocking was in full swing and a few birds started drifting north of the border into New York. Each year brought an increase in turkey forays, whetting the appetites of many hunters in the vicinity of Allegany State Park. Still New York took no official action for it seemed unsound to try to re-establish turkeys if this would require substantial annual outlays for a companion program of Winter feeding. Finally, the invading turkeys themselves settled the question by overwintering and raising broods in areas where only natural food was available.

By Spring of 1952, New York decided that the time was right to give the turkeys a helping hand. Some high-level dickering insured a supply of Pennsylvania turkey stock at bargain prices—in exchange for some of New York's Canadian-strain mallard ducks. Quick alterations were made at the State Game Farm at Sherburne, the foreman and his crew boned up on turkey raising and soon a load of alert but gangling poults arrived.

In the course of this experiment to date only about 2,700 birds have been released (but this still figures at about 14 tons of turkeys). Liberations have been made in the best range that could be found in 19 counties of the State. Most release sites were located first by "scouting" aerial photos or cover maps, then double-checked by ground surveys.

At present, we think minimum requirements are: (1) A semi-wilderness area of at least 3,000 acres, mostly in woods including quite a bit of beech, oak and black cherry of bearing age; (2) snow depths that seldom if ever exceed one foot; (3) surface water available at all seasons of the year.

Wild turkey—home on the range

In the early years of turkey stocking, a few trial feeding stations were set up in Allegany Park. Nearby deer and squirrels promptly went on a diet of corn-on-the-cob but the turkeys paid scant attention. These birds preferred to spend their feeding time scratching up lawn-sized areas for beechnuts, acorns, black cherry fruits, and an astonishing variety of other food items. An almost daily ritual was a visit to a small stream or hillside spring. Here they would darken the snow in all directions with mud scratched up in search of an icy salad of water plants and insects. This was turkey talk we could understand, so the deer and squirrel feeding program was ended.

The day we're working for

The Winter of 1957-58 brought the most extreme snow conditions of a decade to all the range where turkeys have been stocked. In response to reports of starving turkeys, a survey party mobilized quickly to make a mortality check. A week of diligent searching turned up several dead birds and laboratory examination confirmed that most had died of malnutrition. Still the turkey situation proved far brighter than reports. During the field checks, large numbers of turkeys were sighted, all looking trim but vigorous. Snowbanks soon began to slump, bare patches spread along the slopes and turkeys again found ample food. To take a different reading on the losses, management crews hurried back to relocate individual flocks that had been under observation before the storms. Surprisingly, nearly every flock still showed the same count. Scarcely a bird had been lost! The turkeys in western New York, many now five generations removed from semi-wild stock, had passed their most important test.

Another set of turkey grades had been assigned last Fall by a survey made to learn the current distribution of the birds. While birds had been released in 72 townships of 14 counties, the fate of many stocked groups was unknown. Too much real estate was involved to attempt individual surveys.

Instead, Department field men whose work took them near areas that had been stocked were requested to supply turkey records for their individual areas. Reports from Game Protectors, Foresters and Game Management men, supplemented by others from private co-operators, produced a most encouraging picture. (*See map.*) Turkeys were reported in 118 townships of 20 New York counties.

The build-up of turkey flocks in several regions means that management should soon begin. Since management means hunting to most sportsmen, the first question is "How soon will we have a season?" The answer: Probably soon. As a matter of fact, the last session of the State Legislature granted to the Department the power to declare a turkey season for the Fall of 1958. After a quick check on populations in three western counties where these big game birds have the best start, it was decided to pass up this first chance. After several years of stable populations, these turkeys had just made an encouraging spread to new areas and it seemed wisest to wait at least a year for these fringe populations to consolidate their footholds.

It is hoped that the coming session of the Legislature will produce a new turkey law renewing and extending the Department's power to declare seasons.

Probably the first few turkey seasons will prove disappointing to many hunters who have waited patiently for the day or week. Early seasons will be experimental and will have to include many restrictions to prevent an over-harvest. If we are to avoid special licenses or quotas, we must base regulations on the assumption that large numbers of hunters will show up the first year. Predictably, many will not see a bird and most may not even get a shot. Certainly, some will loudly announce that there wasn't enough birds to justify a season. Still, biologists will pick up a lot of needed information at the checking stations and the second year should find a smaller but more experienced group of turkey hunters in the field.

We should also repeat that in many counties there may never be enough turkey range to support huntable populations. But even here the birds will pay dividends. Certainly the tracks or sight of turkeys will add a bonus to a day spent hunting deer or grouse. To countless other folks whose interests do not run to guns, the return of the wild turkeys is already a conservation milepost. The wild turkey is back, to be seen, and perhaps heard, in many pleasant woodlands of the State. All conservationists—those who hunt, and those who don't—find common ground in the hope that turkeys are back to stay. Good management will insure it.

the back of the book

Small woodlands conference

Small woodlands are becoming big business according to the latest reports received from the State and Federal foresters in the northeastern United States. As defined in this region, small woodlands are those of less than 500 acres. According to the United States Forest Service, which is spearheading this program, there are 1,400,000 individual ownerships of this size in the fourteen states extending from Kentucky and Virginia to Maine. In the aggregate these properties comprise 62,000,000,000 acres—more than two-thirds of the total private forest land in the region.

In New York State with 11,000,000 acres of privately-owned forest area, more than 8,000,000 are comprised of ownerships in the less-than-500 acre category and these, in turn, are owned by some 250,000 individuals.

Highlighting the importance which is attached to this situation, a regional meeting was held in Boston, Mass. on September 9th attended by foresters, public officials, businessmen, farmers and others interested in accelerating the programs already underway (such as the Forest Practice Act in New York) which give technical forestry advice and assistance to the small woodland owner.

This meeting had been preceded in New York by a meeting in Potsdam on August 20th which was addressed by Conservation Commissioner Sharon J. Mauhs. At Potsdam plans and suggestions were formulated which were later presented at the Boston meeting.

In an early issue of THE CONSERVATIONIST we expect to run a feature article on the small woodland owner.

Federal pollution control

Seth E. Gordon, director of the California Fish and Game Department since 1951 and former Director of the Game Commission of our neighboring State of Pennsylvania, is one of three new members named to the Water Pollution Control Advisory Board by President Eisenhower, according to information provided the National Wildlife Federation.

Members of the Advisory Board consult with the Surgeon-General of the U.S. Public Health Service, Dr. Leroy E. Burney, on matters relating to administration of the Water Pollution Control Act of 1956, which strengthened earlier statutes on research and in enforcement of pollution laws and providing Federal grants to municipalities for the construction of sewage treatment plants.

Great Lakes lampreys

The emigration of the Atlantic Sea lamprey into the Great Lakes is considered to be the principal cause of the collapse of the prized lake trout population. Most of the information has been of a discouraging nature, but recent events have led to some small measure of optimism.

The U.S. Fish and Wildlife Service has reported that the experimental network of electrical barriers on all of the known spawning streams tributary to Lake Superior was complete. The adult lampreys in this lake attempting their once-in-a-lifetime migration up the streams to spawn were blocked by a field of A.C. electrical current extending from bank to bank. If the strong urge to propagate drove them to ignore the first tingling pulses at the edge of the field and to drive on upstream they were stunned by an electric current designed specifically for fish of a size range common to these spawning runs and probably drifted back downstream from whence they came. If they were more cautious and probed the field from side to side looking for a break, they were led to a trap at the upstream end of the oblique field and destroyed by the attending fisheries worker on his rounds. Thus it was for the first time that the spawning population of lampreys in Lake Superior was prevented from bringing off a hatch.

The life cycle of the lamprey being what it is, it will be necessary to operatae these electrical wires at least seven years before a noticeable declining of the adult population in the lake will occur.

With this long period of control in prospect, a means was sought to shorten the process by killing the larvae developing in the stream. A chemical was needed which would kill the lamprey larvae and not bother other fish associated with them in these streams. After an exhaustive search involving the testing of some 6,000 chemicals U.S. Fish and Wildlife scientists at the Hammond Bay, Michigan laboratory found such a chemical which the manufacturer has named Dowlap. It has been found to kill larval lampreys in a short period of exposure under a wide range of concentrations in water of various quality. Field tests have been so encouraging that the time table for the effecting of lamprey control has been moved up several years. Lakes states fisheries workers are already meeting under the auspices of the Great Lakes Fisheries Commission to plan the program of lake trout rehabilitation on these waters.

While it is not expected that the lamprey will be exterminated, it is hoped that by these control measures the Great Lakes tributaries will be a lot less suitable for lamprey reproduction. It's hoped, too, that lake trout populations will recover lost ground and again become a major Great Lakes fishery.

Soil bank trees

Jefferson County is going in for reforestation under the Federal Soil Bank Program in a big way—in fact, the biggest in the Northeast with 4,900 acres signed up for planting. This one county has signed up more acres than any single *State* in the Northeast, except for Maine and Pennsylvania.

New York State has 31,000 acres scheduled for reforestation under the Soil Bank Program—as many acres as all the other states in the Northeast combined.

The Conservation Department forest tree nurseries, assisting under the Federal program, will supply the trees for planting. In Jefferson County alone this will mean furnishing 5 million trees, and in the State, 31 million to be planted over a period of several years under this particular program.

Each owner will be visited by a Conservation Department forester to assist with planting plans.

Forests and people

Nearly 43 million acres of commercial timberlands are open to public hunting, the Wildlife Management Institute reports. This is one of the disclosures of a survey by the American Forest Products Industries that covered 74 per cent of all industrial timberlands in the United States.

The survey report showed that 42.7 million acres, or 92.4 per cent of the study coverage, are open to hunters in season. Only about 2.5 million acres are closed because of fire hazard, and logging safety or other reasons of the owners. The public may fish on 44½ million acres of industrial timberlands involving some 55,928 miles of lake and stream shoreline.

About 32.3 million acres are open to all public recreational uses without a permit or special pass. Public-use permits are required on about 16 per cent of the forest area studied, and 2.9 million acres are open under a permit system to only neighbors and special groups. About 1.9 million acres of industrial forest land have been leased to hunting clubs.

Some industries reported programs for stocking fish in streams and lakes and 44 had established food patch areas for big game. Thirty-one of the 455 companies contacted employ fish and game specialists. Sixty-five companies have established public parks and present planning includes the enlargement and creation of additional park grounds.

In 1955, hunters took 127,490 head of big game animals from these privately-owned timber lands.

Public fishing

Fish conservation is subject to many "growing pains." There is great need for increased emphasis on basic research. It holds the greatest promise for the future of angling. But, the potential value of new findings will be sharply limited unless aggressive programs for securing and developing adequate public access to fishing waters (both marine and inland) are pressed at the same time.

A recent survey of state conservation agencies, conducted by the Sport Fishing Institute, revealed the scope of the problem: By the end of calendar year 1957, some 29 state conservation agencies had acquired or developed 1,579 sites for public access to 1,284 lakes. They comprise 470,555 acres of water outside of public parks. These facilities include 888 public boat launching ramps. In addition, 653 access sites, including 302 public boat launching facilities, have been made available to anglers on some 6,390 miles of streams and rivers.

These figures actually represent only a small start toward solving a tremendous national problem in outdoor recreation. Considerably less than 1 per cent of the problem has been solved by the sum total of collective effort by all agencies to date!

Altogether, there may be some 35 million acres of natural lakes and ponds; 13 million acres of artificial impoundments of all kinds (including farm ponds), and 25 million acres of coastal marine waters. Access must be acquired to these waters in the foreseeable future —or their public fishing potential may be lost forever.

Mourning dove

The mourning dove has the largest range of any game bird in the United States. It is the only game bird that reproduces in all 48 states.

Pheasant, go home!

What creature's life could be more pleasant
Than the carefree ranging of the pheasant,
Who Summer long 'twixt rows of corn
Parades in fields where he was born.
Then with the start of hunting season,
Led by some unfathomed reason,
Enters the limits of your town,
Where hunters may not hunt him down.
As hunters afield search long and hard
He struts about in your back yard.
When hunting season's safely over,
He's back to fields of corn and clover.
In town you'll no more note his presence;
He's out begetting little pheasants,
Who when next hunting season comes
Will beg at your front door for crumbs.

—Byron Buck

"Andy" retires

From the left, former Commissioners Perry B. Duryea and Jack Halpin join with Commissioner Sharon J. Mauhs in honoring "Andy" Vormwald at his retirement party

Andrew J. Vormwald, better known as "Andy" to his many friends and associates, and Chief of the Bureau of Law Enforcement for the Conservation Department, retired from service on August 1. During his thirty years of service Andy worked as Game Protector in Cortland County from 1928 to 1939 when he was appointed District Game Protector of the Albany Division. He also served in that capacity at Herkimer, Olean and Buffalo. In 1951 he was appointed Chief of the Bureau where he took on the responsibilities of guiding and supervising the activities of over 170 Game Protectors and their district supervisors in 11 districts covering all of New York State.

The problems that conservation officers meet in dealing with the out-of-doors minded public are many and varied—with some of the hardest to solve coming to the Chief of Law Enforcement. Andy's diplomatic handling of these problems netted him many friends in New York and adjoining states.

Mr. and Mrs. Vormwald were honored recently by many friends and associates at a retirement dinner in Albany.

Small Marine Fishes

(*Continued from page 26*)

almost anything. It is frequently caught incidentally by anglers fishing for Winter flounders. Because of the many spines on its head and the spiny top fin, care is necessary in removing the hook from its mouth.

Windowpane Flounder
(Lophopsetta maculata)

The windowpane flounder also known as the sundial and sand flounder is common in our waters from the shore to depths of about of 120 feet. It receives its name from the fact that the flesh is translucent and will allow light to pass through. Although this fish sometimes reaches a length of 18 inches, most of the specimens seen by the skin diver or amateur bait seiner are less than six inches. At this size they are often confused with the Summer flounder or fluke, *Paralichthys dentatus.*

Spawning takes place in Spring and early Summer. The eggs float and when the young hatch they also float. At hatching, the eyes are located in a normal position, one on each side of the head as in other fishes. But as the young fish grows, the eye on the right side of the head moves toward the other side of the head until both eyes are located on the left side of the head. During this time, the body becomes flattened and the eyed side darkens. The blind side stays white. The fish gradually sinks to the bottom, white side down, where it remains for the rest of its life. The windowpane flounder feeds on all varieties of animal life. It is sometimes taken by the angler and if large enough is good to eat.

Menhaden
(Brevoortia tyrannus)

Without doubt the menhaden, also known as the mossbunker and bunker, is the most abundant species in our waters. Although fish up to 20 inches have been reported the average size is mostly under 15 inches. Spawning takes place in Spring and the eggs float. In Summer and Autumn large schools of young menhaden under seven inches in length are commonly seen in our bays swimming and milling about in dense schools near the surface of the water. At this time they enter the small streams and canals often pursued by snappers. Many an inexperienced fisherman thinking these menhaden to be snappers has spent endless hours trying to coax them into taking his hook. Actually the menhaden will not take a bait for it feeds only on minute plants and animals which it strains from the water, taken into its mouth and passed through the gills, by means of fine sifterlike gill rakers.

The menhaden is the food of almost every predatory sea animal, including sharks, fishes, whales and porpoises, as well as sea birds. In addition it is the most important industrial fish in the United States, serving as a source of fish meal for animal feed and fish oil for various industrial uses. Ground menhaden, often frozen for storage, is used extensively in our sport fisheries as chum for attracting fish.

Satisfied customer

A New York Forest Practice Act cooperator signed up last Summer for assistance in managing two areas of red pine plantation. One area of eleven acres was planted in 1930 at a spacing of six feet in rows twelve feet apart. Some of the trees in this planting had reached 11 inches in diameter and the average was nine inches for the 28-year growing period. The other area was planted in 1924, spaced six feet each way and though it was six years older the average tree diameter was considerably less than nine inches.

The owner wished to realize some income from the plantations and both areas were marked for thinning by a Department Forester. A local jobber was employed by the owner and the cuttings were made in a workmanlike manner. The yield—118 cords of pulpwood—was sold to a local paper mill.

In 12 to 15 years the next recommended cut will yield saw logs which will give an even greater return.

"Open wide," please

Large ocean fish regularly permit tiny shrimp to enter their mouths and gill cavities to devour parasites.

The shrimp are not harmed or eaten in the "house-cleaning" process. In addition to shrimp, many of the smaller kinds of fishes undertake this oral parasite cleaning service. This is a frequent function of many of the small, brightly colored reef fishes found in warm shallow seas.

Marine biologists have found that regular parasite "cleaning stations" are established at numerous points in shallow coastal seas. These are thought to be extremely important to larger fish. They appear to visit these stations frequently.

It is conceivable that the stations may have a very important influence on the movements and distributions of some important game fishes. If this turns out to be as significant as suspected, the establishment of some underwater marine fish refuges to safeguard these areas may become an important aspect of marine sport fishery management.

To the rescue

The Raquette Lake Boys' Conservation Camp is wholly dependent on water transport for provisions and for transporting boy campers to and from the camp. A 20-foot Steelcraft cruiser provides this service—or it did until Tuesday, August 19. On that day the engine quit (burned exhaust valves) and the boat was laid up at camp several miles from the nearest service point. Ranger Maurice Waldron of Raquette Lake Village—a handy man with a wrench—was notified and soon appeared at camp with his set of tools. He worked until 2 o'clock the next morning overhauling the engine so it would be ready for duty that day when orders of meat and produce were to be picked up for the stranded campers. Severe winds that day would have made the trip impossible with the outboard craft available.

Department field men are prepared and do meet most any emergency.

Hoosic River pollution

The State Water Pollution Control Board has approved a comprehensive water pollution abatement plan for the Hoosic River Drainage Basin. The plan recommends specific steps by five industries and one watershed village to bring the waters of the Basin up to the standards established.

The next step in the program to clean up pollution in the Basin will be meetings between Board representatives and officials of the municipality and industries to discuss means of correcting conditions noted in the plan. Before adopting the plan, it was submitted to individual polluters for their comments.

The pollution abatement plan is based on official classifications of Basin waters. The Basin was classified by the Board on Nov. 1, 1957. Before classification, extensive water surveys were made and public hearings held in the Basin areas.

A look ahead

The Outdoor Recreation Resources Review Commission (ORRR) has been established by the Congress at the request of sportsmen and conservationists across the nation. ORRR will undertake a three-year study of the Nation's outdoor recreation resources to determine what future public recreation requirements will be.

The Commission will be composed of four Senators and four Congressmen, appointed on a bi-partisan basis, seven citizen commissioners and an advisory council of liaison officers from each of the Federal bureaus concerned with public recreation programs plus twenty-five citizens representing various interests and agencies across the country and directly concerned with outdoor recreation.

The program is primarily to learn the facts, inventory and evaluate our existing resources and the demand that must be met when in 1975 it is estimated there will be 227 million Americans. The ORRR will give a complete report of its findings and recommendations to the Congress in 1961.

The Commission will have to cope with staggering recreation growth statistics already available. Visitations to the National Forests increased from 6 million in 1926 to 53 million in 1956. The National Parks Service recorded 92 million visits in 1946 and 215 million in 1957. Surveys in 1956 showed that of the 178 million people 12 years or older, 25 million hunted or fished or engaged in both and they spent $3 billion annually pursuing these sports. Pleasure boats have increased from 2½ million in 1947 to nearly 6 million in 1956 with more than 28 million persons participating, and, spending $1¼ billion in the process. Reports indicate that over one-third or 66 million people now seek some form of outdoor recreation.

The ORRR has a tremendous assignment and unfortunately a late start with many recreational potentials already exhausted or overtaxed. But plans are essential if future generations are to have available any semblance of the esthetics we enjoy today.

Cigarette bait box

Strenuous efforts to satisfy the tobacco consumers have resulted in a new item of value to the sportsman. The new crush-proof box makes a handy container in which to carry live bait!

Trout and pan fish anglers particularly like to carry garden worms and insect baits in them. The boxes are light in weight, will stand abuse, and fit easily into a shirt pocket.

Atoms and trees

The U.S. Atomic Energy Commission has purchased a large tract of land in the vicinity of West Milton, Saratoga County and is embarking on a reforestation program.

The site consists of 4,000 acres to insure a large security area. About half of that tract is suitable for reforestation, with the remainder being in woods or brush.

The Forestry Committee of the Saratoga County Board of Supervisors has been instrumental in getting a planting program underway on this area. Conservation Department foresters have assisted in the preparation of planting maps and plans. The planting of 100,000 seedlings has already been contracted for and plans call for yearly planting until all suitable areas are reforested.

Did you know that—

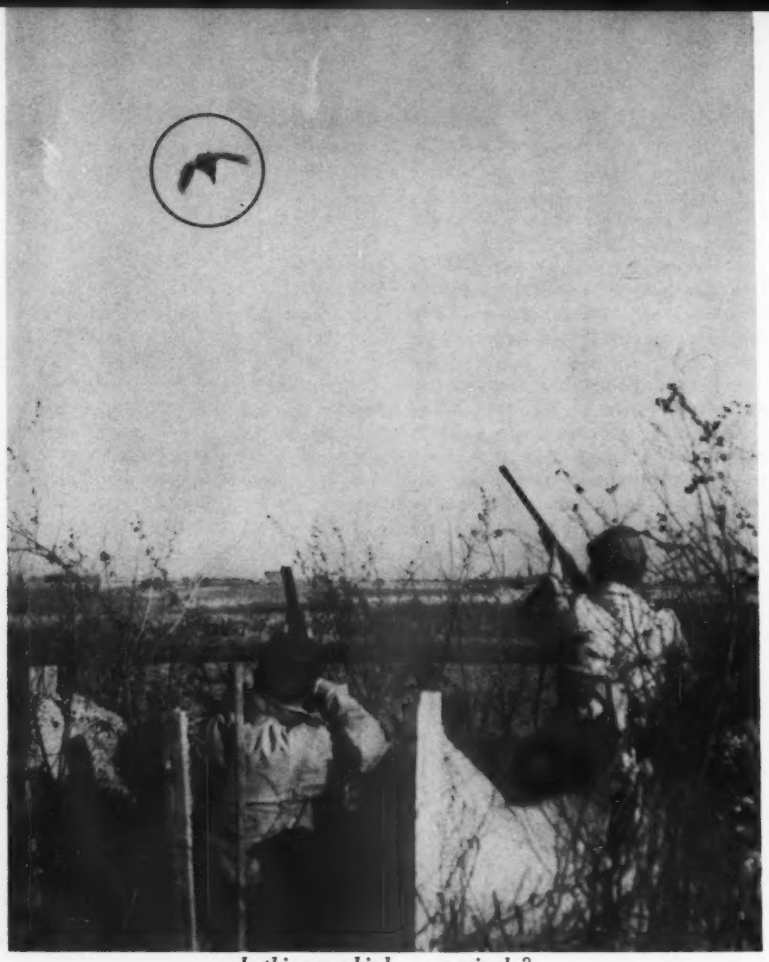
A mallard duckling can swim a third of a mile as soons as it leaves the nest . . . About 70,000,000 pounds of wild rabbit are harvested each year in the United States . . . The teeth of rodents never stop growing, but are kept worn down by gnawing . . . Bats carry their newborn with them for a few days after birth and the young cling to the mother's fur as she flies about in search of food . . . Young crows have been known to eat an amount of food equal to their weight in a single day . . . The coyote is capable of speeds of more than 40 miles an hour . . . After a young robin hatches from the egg, he eats an average of 14 feet of earth worms each day . . . If moving on land, mink carry their young by the scruff of the neck—if in water, "piggy-back."

Day at De Bruce

July 25, 1958 was a big day down Liberty way in the Catskill's Sullivan County. To begin with, it marked dedication ceremonies for the new "quickway," a Route 17 shortcut to carry through traffic around the busy city. This major piece of highway construction broke one of the worst "bottle-necks" on this heavily traveled road and Governor Harriman was on hand to officiate at the ribbon-cutting ceremonies.

Equally important, for some of the boys at the Conservation Department's nearby Camp DeBruce, they had been given a day on the town as a reward for having performed the best conservation project of the week at camp. The boys, clad in their official uniform—Camp DeBruce T-shirts, were surprised when Governor Harriman, recognizing the Conservation Department seal on their shirts, ordered his car stopped so that he might talk to them. All this Gubernatorial attention had the result of prompting local officials to recruit the boys for the job of distributing programs for the affair. After the ceremonies, the campers were amply rewarded for their efforts by ice cream sodas and more important, pieces of the official ribbon which they wore back to Camp DeBruce as badges of distinction.

Camp DeBruce is one of four conservation education camps operated by the Department to teach conservation fundamentals to young sportsmen between the ages of 13 and 17. Approximately 450 complete the program at DeBruce each Summer.—BERNARD PERRI, *Conservation Camp Director, DeBruce*



Is this your bird—or a cripple?

Trigger control

Almost 5 million waterfowl will be lost and wasted this year unless *you* do something about it. In past years we were forced to add 25 per cent more kill to our annual hunting figures because of wastage by crippling and unretrieved birds.

Cripple-wastage cuts heavily into our harvestable waterfowl crop, and it cuts down on the survivors that make up our breeders for the following year.

Nation-wide waterfowl studies have shown that losses from crippling and unretrieved birds range from 16 to 58 per cent, with a shocking national average cripple loss of 25 per cent.

Think of it, for every 100 ducks and geese knocked down, 25 are never recovered.

The principal causes of cripple loss are trigger-happy shooting, inability to judge distance, poor marksmanship, overestimating the killing range of modern shells, poor sportsmanship, and failure to retrieve birds. For the last-named, the best cure is the use of a well-trained dog.

Surveys reveal that cripple waste varies widely with shooting conditions. Loss is heaviest in the early part of the season when vegetation is dense and when hunters, both novice and experienced, are a bit rusty on the marksmanship. Pass shooting, which calls for the highest degree of gunning skill, takes a much heavier toll of cripples than decoy or jump shooting.

No conservaton agency, federal, state or private, can effectively control cripple loss. Only you, the individual who controls the trigger, can effectively reduce this tragic waste which every year results in almost 5 million waterfowl down the rat-hole of indifference, carlessness, and accident.

In 1958, let's adopt a simple plan to reduce "cripple-wastage":

1. Shoot only at birds at reasonably close range—when you hit there, you kill, and when you miss, you miss clean.
2. Use a retriever—it adds to the sport and cuts cripple loss by more than half.
3. Think——a split second can mean a duck in the bag or a duck in the reeds.

—Atlantic Waterfowl Council

Autumn campsites

Certain public campsites in the Adirondack and Catskill regions will remain open for public use throughout the Autumn of 1958 and until the end of the deer hunting season on December 2.

Caretakers will be on duty at Lewey Lake and Forked Lake campsites and permits must be obtained from the Caretaker before camping. Here, a service charge will be collected. At the other open campsites the use of the areas will be free but the local Ranger should be notified before camping. Water and sanitary facilities will be in service until there is danger of freezing weather and the possibility of damage. All other facilities will be available throughout the period the campsites are to remain open. Hunters using the public campsites may possess firearms on these areas during the hunting season but Department regulations forbid the discharge of firearms on public campsites at any time.

Each Fall among the large group of big game hunters and others who use the facilities at the public campsites, there is a small segment who seem to regard the absence of a resident Caretaker as a license to commit various acts of vandalism. These acts mainly involve the mutilation, destruction and theft of signs, structures, utilities, trees and forms of vegetation.

It will help to keep such destructive acts to a minimum if the Fall campsite users will promptly report any vandalous acts which they observe being committed, to the nearest Forest Ranger or State Police.

This would be of help not only in preventing these individuals from doing further damage, but will reduce maintenance costs and assure safer and more attractive campsites.

Campsites remaining open this Fall are: Cranberry Lake, Eagle Point, Eighth Lake, Fish Creek Ponds, Forked Lake, Golden Beach, Lake Durant, Lake Eaton, Lewey Lake, Little Sand Point, Meecham Lake, Moffitt Beach, Rollins Pond and Sharp Bridge, in the Adirondacks; and Beaverkill, Devil's Tombstone, North Lake and Woodland Valley, in the Catskills.

Unhandy gun

If you kill a deer when you are alone, there is always the problem of dragging it out. About this time your gun becomes bothersome to handle. If you carry a strip of light plastic in your pocket, you can wrap your (unloaded) gun in it and after you have dressed your deer, place it in the body cavity of the animal.

And while you are waiting on watch, the plastic makes a handy water proof seat.

Lost child

It's routine for Conservation Department Rangers and Game Protectors to search for lost adults. It happens every year, usually during the hunting season. Hunters, though, are reasonably able to cope with such emergencies and the Department men do not worry too much while the search is on. It's a different story, though, with youngsters. And when Brenda Doud, five years old, of Massena strayed away from a cottage at Eagle Pond near Malone, Game Protectors Flanders, Savard and True hurriedly joined a task force of over 500 organized searchers including State and local police, firemen, Boy Scouts, civilian volunteers and special ground and air task forces of the regular Army and National Guard.

Long and tedious hours of careful seaching followed until Brenda was found, frightened but unharmed and returned to her anxious parents. The little girl had been lost nearly 48 hours.

Conservation Department field men's knowledge of the often rugged and remote terrain they regularly patrol is of tremendous advantage in such emergencies when every hour counts.

Goldeneye in a chimney

Back in 1938 a goldeneye duck built a nest in the chimney of a cottage beside the Severn River (Ontario, Canada). In each succeeding year, except for 1953, a goldeneye nest has been built and used in that same chimney. There's no doubt the record would have been unbroken if the owner had not decided to board up the chimney in the Fall of '52. Even then, the mother duck nested in a hollow stump close by.

Two years ago, the owner rescued five soot-covered ducklings from the stove at the base of the nesting chimney—bedraggled but very much alive. After a bath in a pail of water, the youngsters were reunited with the mother duck, waiting anxiously by the water's edge.

The American goldeneye is popularly known among sportsmen as the whistler; a title earned because of the shrill whistling sound heard when the species is on the wing.

New process

The pollution of streams and lakes by sewage and industrial wastes may soon be alleviated through a revolutionary process now in final stages of development by the Pulp and Paper Research Institute of Canada. The polluted waters from a plant are broken down into a fine spray, heated and whirled, thus removing chemicals which poison it, according to Dr. Lincoln R. Theismeyer, president of the Institute. Dr. Theismeyer described the process as a major "technological break-through" with industrial applications far beyond the paper industry. Although the new process has yet to be proved commercially, Dr. Theismeyer is confident it will pass the test and engineering firms are working on the design of the first commercial plant.

The technique is thought to be applicable for extracting fresh water from sea water on a large scale; for sanitary disposal of sewage; for refining oil and metal ores and for separating the waste products of many industries into usable chemicals and pure water.

The process takes the liquids or slurry (sludge of crude oil or sanitary wastes) and sprays it into the top of a tower, the walls of which are maintained at a high temperature. The moisture forms a vapor of super-heated steam with droplets drying and the solids become solid particles, suspended in the vapor of their own creation. Solids can then be separated from the liquid with a cyclone separator —a centrifugal force operation—after which the steam can be passed along as process steam in the plant, or condensed and the water re-used. With paper mill wastes, combustible gases are drawn off with the chemicals to be saved and passed back into the outside jacket for burning to keep the process going.

The pilot plant at the Institute converts liquids by the gallon. Commercial plants would process hundreds of tons a day.

Family affair

Camping used to be a man's pastime—with a few of the more hardy gals and some youngsters participating. Now, the outdoor living theme is a family affair and equipment manufacturers are outdoing each other to make their products acceptable to the wife and youngsters, too. Their success has been proven and camping vacations for the whole family lead the vacation parade.

Conservation teaching aid

A well illustrated, 30-page guide, "Teaching Soil and Water Conservation; a Classroom and Field Guide," is available free to teachers and leaders of youth groups. The booklet can be secured from the Department of Agriculture, Washington, D.C., or from local Soil Conservation Service offices.

Each recommended conservation activity is presented in two parts. There's a "how-to-do-it part" written on a student-understanding level, and an interpretation part addressed to the teacher to give readily available background information.

Conservation award

John Bain, industrial engineer of Palmyra, and long time Secretary of the New York State Conservation Council, has been selected as one of twenty United States conservationists to receive the current series of American Motors Conservation Awards for his outstanding work with the Council as a non-professional conservationist. John well deserves this outstanding award for his tireless efforts to promote good conservation in New York State.

The '58 tournament

During the last week of July, the National Field Archery Association held the 13th annual championship tournament at the National Guard camp, Grayling, Mich. A record number of 1,400 archers participated in the shoot.

Good weather, excellent field courses and gentle terrain (as contrasted to the rugged hills in New York, where the National was held in '57) all contributed to the highest scores ever shot at a national tournament.

New York State archers showed their interest in the sport by being third in number of attendance, outdone by the host state, Michigan, and its neighbor, Ohio.

The top winners were: Joe Fries (Calif.), men's free style; Lon Stanton (Mo.), men's instinctive; Skip Palmer (N.Y.), men's heavy tackle; Ann Marston (Mich.), women's free style; Jo McCubbins (Calif.), women's instinctive; Pearl Hammerstrom (Wisc.), women's heavy tackle.

It's good to see interest continuing to increase in organized field archery. With a rapidly growing and spreading human population, bow hunting — first cousin to field archery—will play an increasingly important role in conservation. Organized field archery has done a great deal to train bow hunters in the proper handling of their equipment.—H. WAYNE TRIMM.

Chemung River drainage

The 2,400-square mile drainage basin of the Chemung River and its tributaries was surveyed this season by a team of six engineers and chemists to determine its classification under water purity standards established by the State Water Pollution Control Board.

Survey studies include the examination of the physical and flow characteristics, type and use of lands bordering the waters, water usage and the extent of present pollution caused by existing or past discharges of sewages and wastes.

The survey team utilized a mobile field laboratory to cover the extensive drainage located in Steuben, Chemung, Schuyler, Livingston and Allegany counties.

The State Health Department's Division of Laboratories and Research, the U. S. Geologic Survey and local health departments in the area assisted the team.

Adopted but not adapted

One evening Howard Ferguson of Connelsville, Pa., was relaxing by one of his ponds when he saw a mallard hen at the edge of the water with what appeared to be a brood of nine ducklings. She coaxed eight of them to jump into the pond with her. The ninth little bird remained on the bank for some time, but finally the hen lured it into the water. It splashed around briefly, then sank.

Suspecting something was amiss, Ferguson retrieved the sunken bird and found it to be a pheasant chick. Examination of the mallard's nest showed all the duck eggs empty, but there were two unhatched pheasant eggs among the shells.

Coots and such

In England coots are called moat hens (here we've twisted the term to mudhen); moor hens in Scotland; water chickens in most of continental Europe; blackies (negrates) in Central and South America.

Thompson medal of honor

Dr. Paul Crouch of Oxford has been awarded the highest recognition that it is possible to bestow upon an individual for devotion and extraordinary services o the sport of archery—the Thompson Medal of Honor.

Dr. Crouch emerges as one of the few archers who, over a period of 30 years, has lent unstinted support to the cause of organized archery in all its phases. Long after his championship years, Dr. Crouch is still sufficiently interested in the actual shooting to make the effort to maintain his skill at a level which will assure him a place in the top third of any archery line.

Dr. Crouch won his first National Championship in 1925. In that tournament he set a new record for the double American round with a score of 1.207 points. From then through 1931, he won the National Championship twice and held the Eastern Championship five times.

Dr. Crouch's work for archery has also encompassed much effort for the direct benefit of field archers in New York State. He was instrumental in geting the bow and arrow deer bill before the State Legislature where it was passed in 1948.

For the past three years, he has been the prime mover behind the campaign for funds to send outstanding archers of the United States to the World Championship matches.

There is no doubt whatsoever that Dr. Paul Crouch has earned his place in the distinguished company of the Thomas Medal of Honor winners.

Bunnies lead

A survey made by Remington Arms a few years ago emphasizes where most hunter interest lies.

By percentage consumption of shotgun shells fired at game, rabbits were by far the leader with nearly 30 per cent of the shells fired at them. Squirrels were second with 14 per cent; quail were third, fired at almost as often. Skeet and trapshooting combined consume 12 per cent of shells fired; waterfowl 10½ per cent; pheasants 9½ per cent; doves 7 per cent; all other game 3½ per cent.

About three-quarters of all shotgun shells fired are expended on small game. Obviously, rabbits and squirrels are to hunting as pan fishes are to fishing.

Zippers

A little paraffin wax applied to zippers on camping equipment and outdoor clothing will keep them from rusting and sticking.

Fish salvage

During the season of 1957, the Conservation Department's fish salvage crews operating in various waters of the State netted and restocked 667,330 fish, weighing 245,266 pounds, or more than 122 tons; the largest poundage ever handled in all the years of the Department's fish salvage operations. In addition, 28,414 pounds of undesirable fish such as carp, suckers, etc., were destroyed as well as 194 snapping turtles, weighing 2,387 pounds.

A total of 45 waters in 28 counties were netted and 210 waters in 45 counties were stocked during the 1957 season.

Children's fishing ponds, stocked with salvage fish, continue to increase in both number and popularity. At the present time it requires approximately 60,000 pounds of fish to stock community ponds for "kids' fishing derbies."

Summer visitors

From Jess Dildine, Geneva druggist, naturalist, mountain climber and conservationist, comes word of some unexpected visitors to the Geneva area this past Summer.

Over near Waterloo a doe and her triplet fawns were observed on the Seneca County farm of Henry Shweitz. The awns, seen in mid-August, were judged to be about a week old. Outdoorsmen are somewhat worried that the "youngsters" are getting a late start in life before Winter sets in.

Mr. Dildine also reports a large beaver killed on the road near Kashong Creek, about a mile from Lake Seneca. A couple of weeks later another beaver was seen swimming "along the shore across the lake." Two porcupine showed up near Geneva and one was shot inside the city. Raccoon have been paying regular visits to city garbage pails.—R.B.M.

Beaver—otter take

The Spring trapping season of 1958 for beaver and otter accounted for 7,056 beaver pelts taken by 1,370 trappers and 227 otter pelts taken by 179 trappers.

Counties where success was especially good on beaver trapping were: St. Lawrence, with 1,218 pelts; Lewis, with 875; Franklin, with 803; Herkimer, with 743; and Hamilton, with 658. St. Lawrence also led with the number of otter taken —45. Franklin County trappers accounted for 35 otter and 32 otter were taken in Herkimer County.

Food for thought

The weasel possesses a healthy appetite. It will eat about one-third of its weight in meat every twenty-four hours.

Keeping posted

Painted Post, (N.Y.) had a visitor this Summer—and he caused quite a commotion for a while. He came to town in the morning, probably to do some shopping (garbage can contents) but because of his fur coat he attracted quite a bit of attention—dogs, kids and the like—and before long he was a bear-up-a-tree and in the residential section, too.

It wasn't long before Conservation Department men, State Police, sheriffs, firemen and others, called by alarmed residents, were trying to find a way to get him back to his woods home. No small chore either: lassoes and animal nooses in the hands of men perched on fire ladders were deftly parried by a lightning paw.

Eventually, though, persistence won out and he was finally snared and crated for transportation to a less congested area.

Mission accomplished

Game Protector Edward Kurka had received five complaints from different landowners of night shooting in the vicinity of Pound Ridge (Westchester County). Most of the complainants could even give the hours the shots were heard and identified them as shotgun or large caliber rifle.

Protector Kurka patrolled the area the next night until the wee hours of the morning—but nary a shot. The next night he was on the same patrol when he heard a loud report, saw a flash. His investigation revealed that a local resident had a string of fire crackers timed to go off at hourly intervals during the night to discourage deer and raccoon that were raising hob with his garden, especially the sweet corn.

Conservation reserve challenge

State wildlife agencies now have an exceptional opportunity to create prime game habitat in the conservation reserve phase of the Soil Bank Program according to field representatives of the National Wildlife Federation.

Actual experience by the North Dakota Game and Fish Department has shown that a state agency can help stimulate the creation of prime game habitat through provisions of the conservation reserve at an average one-time cost of $1.75 per acre. They concentrated a sales effort in a 12-county area and induced farmers to place over 4,000 acres of land in "G" or wildlife improvement practices, in the 1958 conservation reserve program. The overall $1.75 cost figure included payment of $1 per acre above the Federal cost-sharing participation for practice establishment to co-operating farmers. Other states are achieving considerable success also in the Soil Bank wildlife habitat improvement program.

A big 1959 conservation reserve sign-up is expected and the U.S. Department of Agriculture hopes to have 12 million acres placed in the program in addition to the 10 million already under contract. The acreage reserve phase of the Soil Bank Program is being discontinued and many farmers are expected to switch to the conservation reserve. Rental payments are being increased, special incentives will be offered to place entire farm units under the program and broader interpretations permit increased soil management possibilities. Federal cost-sharing participation for wildlife practice establishment remains at 80 per cent.

Teaching conservation

A 10-day workshop has been established in Michigan for the purpose of planning and writing a guide for teaching conservation in that state. The project is sponsored by the University of Michigan, Michigan State University, the Michigan Department of Public Instruction, the Michigan Conservation Department and several other interested organizations and agencies.

Several organizations and industrial firms donated $100 scholarships to make the workshop possible. The selected teachers were carefully screened by the State Conservation Education Committee on the basis of conservation teaching experience and writing ability.

Porcupine eyes

Unlike many of the smaller animals, the baby porcupine is born with its eyes open.

Forest fire sign

A new forest fire danger sign has been set up on Route 28 near Forestport to advise motorists of the daily forest fire hazard.

The sign is eight by ten feet—with a five-foot "Smokey Bear"—symbol of forest fire prevention. "Smokey" points to one of four classes of fire danger—Low, Moderate, High or Extreme, according to conditions in the Herkimer-Oneida County area. Daily fire weather reports form the basis for the fire danger shown by "Smokey."

Whose territory?

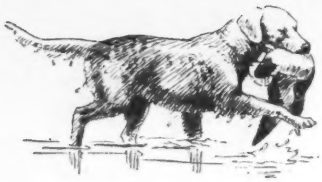
There is a big hollowed out stump in the brooder house pond at Howland's Island Game Management Area. During the early part of May a pair of Canada geese were observed near the stump, acting as though they were setting up their territorial rights. Two weeks later, when we checked the area to get a count on the number of Canada geese nesting, we found a mallard duck setting on her nest in the same stump. Then, during the week of June 8th, the mallard hatched her eggs—four little mallards plus one Canada gosling. Another goose egg still in the nest was infertile.—ROBERT BAUER. *Game Farm Foreman.*

Conservation exhibit

The Albany County Conservation Alliance, representing 23 member sportsmen's clubs, tried something new this year—a conservation exhibit at the Tri-County Fair in Altamont.

Focal point of their display was a waterfall flowing from a cedar grove into a pool, enlivened by a variety of pan fish.

The exhibit was well received and Alliance members, encouraged by this first-year interest, are planning a repeat performance in 1959.



Letters to the Editor

Sarcophaga

During the years 1951-1955, New York State suffered one of its heaviest and most extensive forest tent caterpillar infestations to date. This posed a serious defoliation threat reported on at the time in THE CONSERVATIONIST.

It is customary during epidemics of this pest to have large populations of a parasitic fly (sarcophaga flies) of the caterpillar develop along with the increase in population of the tent caterpillars. These beneficial flies reach large proportions and, while not being of the biting variety, are a nuisance to residents of an infested area.

In June, 1954 the sarcophaga flies were at their peak of abundance in New York. Some individuals, upon noticing these hoards of flies for the first time, caused rumors to be spread that this new pest had been released by the Conservation Department to assist in controlling the tent caterpillars.

In any event, the sarcophaga played their roll well—the tent caterpillars were put to rout and are currently at low ebb. The big parasitic flies have declined in population too. But not so in Wisconsin. That State was apparently getting the same treatment this year and the people are reacting exactly as they did here in New York, as evidenced by the following letter received by the U. S. Forest Service.—Editor

To the Secretary in charge of the Plague of Flies to get rid of the army worms—whoever you are: Would you please be so kind as to recall your recruits. For three years they have made the housewives of northern Wisconsin miserable and they are certainly not getting the job done.

They can't be doing the army worms any harm. They are too busy eating the starch out of the laundry. If it isn't sun-tan lotion, varnish, kerosene and insect repellent. Especially insect repellent. I sprayed it all over a blanket in the yard so there might be a chance of the children getting to play outside. I think it brought in a new battalion from Minnesota. We had to knock them off the blanket with a broom. We can't work outside, the children can't play outside, the dog refuses to stay outside and in general your organization has made life miserable.

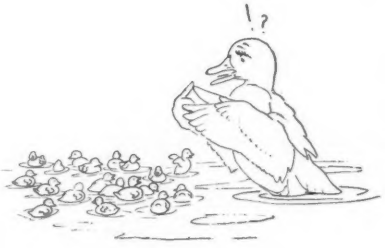
I don't know what kind of flies these are. They are too big to be houseflies—and too stupid to be horseflies—but they have feet like wet lollypops and leave brown marks all over anything that is hung out, sits down or yawns.

It looks like someone up there would have realized that the flies could be a far bigger nuisance than the army worms ever were—when they got this bright idea. We have a gorgeous country up here, but no one can stand to stay out in it. What do you release to get rid of the flies now? Bats?

Saying not to swat these flies because they will get rid of the worms—is like saying don't take that eyelash out of your eye, it will get rid of the cinders.

So, dear sir, will you kindly do something about this—or I shall have to take it up with your boss—the President?

Mrs. H. Sexton,
Manitamish Waters, Wisconsin



A redhead's family

Dear Editor: It happens in the best of families and this time to a redhead. On the morning of August 7, 1958, Mrs. Redhead was cruising along, happy as a mother duck could be, with her two, four-week-old youngsters in tow on the Upper Pool of the Federal Montezuma Refuge. Then, all of a sudden, up popped 19 young redheads from behind a clump of cattails. Mrs. Redhead bowed a courteous hello and started to proceed on her morning shopping tour. But her youngsters liked the strangers and the strangers liked them. Net result was that Mrs. Redhead's family increased many fold in short order and 19 newly-released five-week-old redhead ducklings, game farm-reared, acquired leadership and guidance which may auger good survival for the strangers just out in the new wide world of cattails, bulrushes and water.

Dirck Benson,
Game Research Investigator

• *Dirck Benson tells how confused redheads can be in a feature article, "Where is Home?" in this issue.—Editor*

Deer rifles

Dear Sir: Many interested people are asking this question in the counties where it is legal to take deer by rifle: Is it legal to use the .22 "wildcat" calibers such as the .220 Swift, the .222 Remington, the .218 Bee, the .22 Savage, etc? These are all center fire cartridges and with a clean hit will easily kill a deer. There is quite a bit of pro and con on this and an answer from you will settle this issue.

Also, I attended the State Fair and your exhibits, as usual, were tops. It's unfortunate you cannot secure a larger building, as it is quite crowded most of the time. I arrived at about 9 A.M. and was able to see the exhibits quite casually and unhurriedly but by noon the building was packed. This certainly shows that people are interested in conservation.

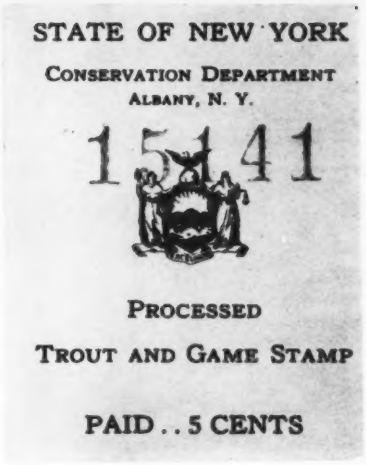
I have been a subscriber to your magazine for quite some time and always look forward to the next issue. They are quite invaluable in Scout training and conservation classes. Your representatives at the conservation building were courteous and informative. They deserve a big pat on the back, for the fine job they have done.

Donald Fiarletti, Rochester

• *The Fish and Game Law (Section 225) specifies that "No person shall hunt wild deer or bear with a pistol, revolver or rifle using rim fire ammunition." This covers all types of* rim fire *ammunition no matter what caliber. The weapons that you mention are all* center fire *and thus are legal to hunt deer or bear wherever rifles are allowed.*

In general, we do not recommend the use of these calibers for big game hunting, realizing full well, that in the hands of a capable marksman or one who chances on an easy shot that such rifles are very lethal. An average hunter, however, will do much better using a heavier caliber weapon (.30 caliber is the most popular) that has sufficient shocking power to dispatch an animal that cannot always be hit in an immediately vital area. The majority of New York State's deer hunting is in heavily wooded or brushy country where deer are often shot at short ranges and often in full motion which does not allow for really accurate sighting.

We appreciate your comments on our State Fair exhibit. We try to make the best possible use of the space that is allotted to the Conservation Department.—Earl A. Westervelt



Game stamp

Dear Sir: As a sideline to my interest in conservation, I collect State hunting and fishing license stamps. Recently, a friend sent me a New York State "Processed Trout and Game" stamp, 5¢ denomination, the first I have seen. This stamp is not listed in any of the philatelic publications covering the state issues. Therefore, it is of considerable interest to collectors.

I would appreciate any information you are able to give concerning this stamp.

G. M. Tuttle, Niagara Falls

• *From 1941 through 1943, Section 375 of the Conservation Law provided for the issuance and sale of these stamps. This provision was repealed in 1944, but use of the stamps continued until June 30, the end of that fiscal year.*

While in effect, this law required that such a stamp be attached to any sealed container in which trout, imported game or domestic game was possessed, transported or sold.

Such game must still be identified when possessed, transported or sold in this State but metal seals or tags are now used for that purpose.—Editor

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Panther season opens

Dear Sir: I write this letter to you with hesitancy, reluctance and in absolute awareness that what I have to say might tend to create a comfortable room for me in an asylum, but, nevertheless in order to best satisfy myself and many friends who have been so kind to listen to my tale here goes!

On June 26th this year, upon breaking camp at the Lewey Lake campsite in the Adirondacks, we traveled southward on Rte. 10 towards Speculator on our way home. About 400 to 600 feet past a place called Snowy Mtn. Lodge we were, my wife and I, almost cast into a state of make believe because before our very eyes we watched a black panther cross Route 10 obviously unaware that we were approaching. Well! I don't have to relate my amazement at this finding, it was certainly evident as I almost climbed a tree on the side of the road—Buick and all! I wear glasses for reading (occasionally) and my vision has always been good to me, but contound that day when this cat crawled across the highway. I'm still wondering if it were true, or whether or not there is the possibility of a mirage of some sort. Then there is also the fact that my wife saw this same thing that I did and between the two of us we can't come to any reasonable answer except that it was actually a panther.

I've gone through my back issues of THE CONSERVATIONIST in hopes that I might locate a similar experience from a sportsman but don't find anything quite suitable from which I might draw a conclusion.

Tell me, dear sir, was it just our imagination, or are there any panthers in the Adirondacks? One more thing, I stopped the car at the point where this animal crossed and entered the woods, looked about for signs of tracks but the ground immediately after the little sandy portion adjoining the blacktop was hard and prolific with weeds.

Since this experience, I have related it to several of my friends, who listen very kindly for a moment then start to grin which before long turns into abominable (to me) laughter. They think I'm nutty, I am almost beginning to agree with them.

Will you kindly find out from your readers if anyone else has ever seen a black panther in the Adirondacks?

A. M. Curran, Sayville

• *Mr. Curran is the newest member of our "panther Society." Anyone may join.—Editor*

Deer exhibit

Dear Editor: The Schaghticoke Fair ran from Saturday, August 28 through Wednesday, September 3 this year with some 80,000 persons attending.

The Conservation Department's deer research exhibit was set up in a 16' x 20' tent in front of the permanent conservation display. It was well attended during all six days of the Fair and on Labor Day an average of 1,200 persons per hour viewed the exhibit, from 11 a.m. to 9 p.m., or a total of 13,000 people that day alone.

Asa H. Smith,
District Game Manager

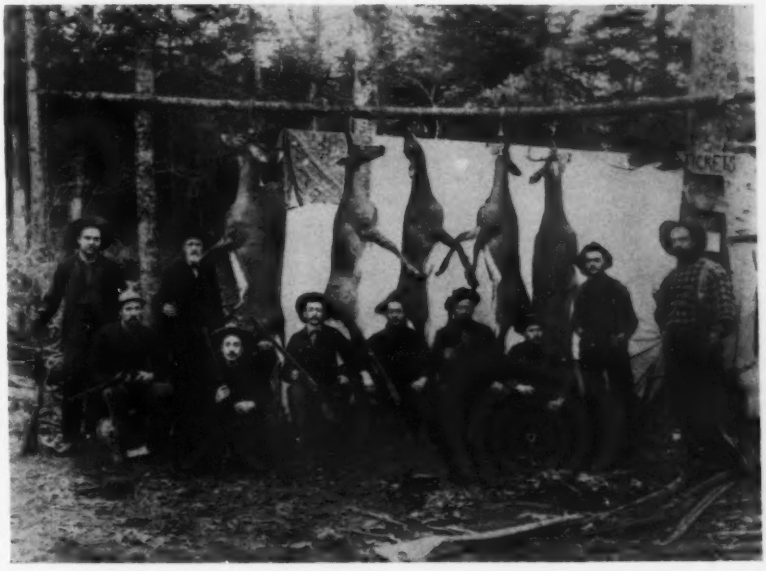
Peepers

Dear Sirs: Will you please tell me what peepers really are which we have in the Spring in marshes? Everyone I spoke with about them has a different answer and I would like to get a correct answer.

Paul Markman, Brooklyn

• *The Spring peeper is a small frog with the scientific name of* Hyla crucifer *(meaning "cross bearer"). Just after the ice goes out of swampy areas, the mating season arrives for these chorusers and they congregate in large numbers.*

See A-S '55 CONSERVATIONIST *in which this species is pictured and described.—Editor*



Three guides

Dear Editor: This picture was taken in the Adirondacks about 1894, probably around Pillsbury or Mason Lake. It shows a hunting party and three guides well known around Speculator for many years. On the extreme left (standing) is Jim Sturges, at the extreme right is his brother, John Sturges. Seated at the extreme left is my father, Bert Danforth; three guides well known at that time.

Dr. A. L. Danforth, Buffalo

• *Less well known is the attraction for which, according to the sign and pointing finger, one could buy tickets.*—Editor

Fish leeches

Dear Sirs: Last week Thursday, August 7th, I was fishing in Lake George with Gus Koschorreck and Paul Fiske in the latter's boat. We were trolling in 85 feet of water, north of O'Dell Island and about the middle of the lake.

We hooked and netted a 7-lb. lake trout which had ten or fifteen small lumps on its skin. These were about a quarter inch in diameter and of a jelly-like consistency and were reddish-purple in color.

I immediately brushed them off with my hand but where they had been, the skin was gone and the flesh beneath was exposed.

I presume this is the work of some sort of parasite and will be interested to have your comments about it.

Harold S. Moore, Albany

• *The fact that you were able to brush off the parasites (on lake trout from Lake George) leads me to conclude they were probably fish leeches. These can stretch out or contract at will and are about the size you describe. In years past we have had a few lake trout specimens from Lake George with fish leeches. They are generally considered rather "normal" parasites in that the fish can carry them without damage.*

There are so many parasites affecting fish that it would be impossible to identify this condition for certain without specimens to refer to a fish pathologist.—John R. Greeley, Chief Aquatic Biologist

Snakes and rabbits

Dear Sir: Have you ever known of snakes swallowing baby rabbits? I have just had a very funny experience with some.

I have my grandchildren's rabbits here on the farm with me and they are very large New Zealand whites. The mother rabbit had one litter two months ago and I found only two in the nest and this week she had six. When I went out to feed them yesterday morning the nest was torn to pieces and one of the three-day-old rabbits was out of the nest and not near it, so there were only five. I could not imagine where the other one was because I have hardware cloth on the bottom and it is a foot off the ground. I didn't think the mother had eaten it. Then I heard a squeaking in the grass about eight feet from the cage and I looked and there was the little black rabbit. He was cold but alive. I got him warm in my hands and put him back and just happened to look in the direction where I found him and a very large dark colored snake crawled along and under the rabbit pen. He was the only thing that could have gotten in. I have small mesh chicken wire on the sides and a cover on top of the wire, but I have screening across the top of the front above the cover so nothing could crawl in. I found a hole just about the size of the snake where he could have taken the little rabbit out. The screening is old and he either busted a hole in it or something did.

I have found the nest torn to pieces many times and the white fur on the ground so I had the whole big pen moved in the garage and closed the doors and this morning the mother rabbit has a new nest made and lined with her fur, so it must be the snake has gotten little rabbits before. I believe there must have been more than two rabbits in the other litter.

Myra Elethorpe, Hague

• *I have never seen a snake in the act of taking a baby rabbit but a large one is quite capable of doing so.—Editor*

Cats

Dear Sir: I am enclosing a picture which I thought would be of some interest to readers of your magazine.

It was taken about the middle of June while on a fishing trip up the Middle Branch of the Oswegatchie River above Harrisville. My friend, Fred Tucker, and I were driving our car over a lumber road on way to my camp, when suddenly we saw a commotion out ahead in the brush and, as we came nearer, a large bobcat made several leaps and landed high on the trunk of a fallen tree about 50 ft. away.

I reached for my .22 rifle and, after a few seconds' delay in finding a cartridge, shot the animal in the head. Returning to the car with the cat we then investigated a noise we had heard in the brush back of the car. It was a small bobcat, which I also shot.

We found the trout fishing none too good on our overnight trip but feel our unusual experience with the cats was well worth the effort—and well paid for—after receiving the bounty of $15 each.

Burton Humes, Watertown

P.S. It was recently reported that a panther has been seen only a short distance from where I shot the cats.

And more cats

Dear Sir: Enclosed find photo of a medium-sized bobcat I trapped on Hale Brook Park in Town of Lewis.

E. F. Keith, Elizabethtown

• *It has been a great year for cats.—Editor*

Epitaph

Dear Editor: Here is a poem written by a West Carthage man and published in the *Watertown Times*. It might serve as a reminder to the army of nimrods that will invade our forests this Fall.

R. E. Kerr, District Ranger, Canton

Mistaken for a deer

Amid the golden Autumn woods a tumult filled the air,
For it was hunting season and the nimrods all were there:
Secure among the birches stood Joe Horn, a noble deer,
And in his eyes were tears of grief, but not a sign of fear.
All day the woodland runways rang with fearful cannonade:
It thundered in the valley; it echoed through the glade:
A swarm of city hunters, all arrayed in garments bright,
Were feverishly popping off at everything in sight.
Joe Horn, the noble deer, was filled with sympathy and woe.
And mournfully he snorted to his playmate, Jennie Doe:
"It fills my heart with grief to see these eager, heedless souls.
Who prowl the Autumn woods and shoot each other full of holes."
In spite of wives and families who mourn them back in town.
They always get the fever, when the leaves are turning brown
And so they fill the forests with their clamor every year,
To leave behind an epitaph: "Mistaken for a deer."

"Vic," West Carthage

Rabid coy-dog

Dear Editor: On July 30th this year, Game Protector George Gibbs, Constantia, notified Franz C. Winter, supervising trapper on the Wildlife Rabies Control Program of an animal shot under rather peculiar circumstances by a man living near Bernhards Bay, north of Oneida Lake. The animal was heard fighting with several dogs in the backyard of a local resident. After being shot once the animal ran off, was chased, and finally killed.

Later inspection identified the animal as a coy-dog and it was determined later, after laboratory diagnosis at Cornell, that the coy-dog was rabid.

As far as I know, this is the first record in New York of a coy-dog having been infected with rabies.

S. B. Linhart,
Co-ordinator, Rabies Control,
Freeville

A friendly lot

Dear Sir: I've got a fish story for you gentlemen. It's about a smallmouth bass, 15" and a pinch more. It weighed 2 lbs. and 1 ounce. I checked him or her on three different scales and they all averaged 2 lbs. so the fish weighed 2 lbs. The 2 lbs., 1 ounce was from my fish box scale. I think it's slightly off, 'cause the other scales say 2; girth 12".

Sunday 27 July, it was in the 80° temperature. Was real hot. There wasn't a cloud in the sky; no wind all day; there were eel flies dead all over the lake (Oneida), also small funny flies all over the lake, in my eyes, ears. Wow, it was something terrible! Well anyway, we, (my father, brother-in-law) were fishing out from Constantia, 50 yds. from a point off Long Island, north, in about 6-8 ft. water all morning 'till about 12 noon or 12:30, using 4 lb. monofilament line, no sinker, just a crab—floated him 'till the crab hit bottom, about 2 minutes. Had a tug like being hooked on bottom. The line stayed taut, seemed like ½ minute, then pow! About three feet out of the water he jumped, minnows flying everywhere in the air, dead, about a dozen or more; about 2" long they were. He jumped three times; beautiful. He was in perfect health. He probably gorged himself with those minnows. The lake was dirty; cleaning itself. Also caught a catfish same spot, same way; 10 lbs. he went; two perch same way, I lb. apiece; all in about one hour's time, at high noon or 1:00.

I played the bass 'till he was tired and floated. I then grabbed him by hand to land him. No net. We hailed a passing boat to borrow a net for the catfish.

Fishermen are a friendly lot.

John P. Connelly, Syracuse

P.S. Jaw tag No. CU 2746 enclosed.

• *Thank you for reporting the capture of a fish carrying tag number CU 2746. This fish was tagged on June 20, 1957, and released at Constantia, Oneida Lake. The fish was 13.9 inches long when released.*

Information on tagged fish is used to determine the movements, rate of growth and percentage of legal fish harvested each year. Your interest and co-operation are much appreciated and are essential to the success of our fishery program.—John L. Forney, Biologist in Charge, Cornell Biological Research Station

Black 'chucks

Dear Editor: I am very interested in hunting woodchucks and have taken 3,007 animals since 1952. Of all these 'chucks, only two were pure black. Do you have any information on the occurrence of pure black woodchucks and their ratio to normally colored woodchucks?

Lynn Hunt, Rock Stream

• *Such coloration in animals, and it is not restricted to woodchucks, is known as melanism. Physiologically, it amounts to over-pigmentation of the fur, giving it a much darker or black coloration. It is just the opposite of albinism or lack of pigmentation which turns up the occasionally white or albino 'chuck. These extreme color phases are uncommon but a few are reported each year.*

You have probably noted from the large number of animals you have taken that color phases vary on both the light and dark side of the average grizzled, red-brown 'chuck. Some will be quite orange—similar to that color in domestic cats. On the darker side, it seems the 'chucks inhabiting woodlands instead of fields tend toward darker phases. Such variations, however, are not to be confused with melanism or albinism—too much or too little pigmentation. Nor should it be confused with normal coloration patterns, such as black and white fur of a skunk.

I am not aware of anyone who has recorded observations or specimens to the point of determining the percentage of occurrence of melanism in woodchucks, but Dr. William Hamilton of the Department of Conservation at Cornell University is interested in records such as yours and I am referring your letter to him for possible further reply.

Doctor Hamilton comments further, as follows: "In the Ithaca area, Harold Rightmyer has shot over 5,500 woodchucks in a span of thirty years. I have observed 7,000 woodchucks in the past thirty years. Together, we judge, from field observation and actual ratio of normal to melanistic individuals that have been shot, that the ratio of black to normal colored 'chucks is approximately 1:1000. Albinos are somewhat scarcer."—Earl A. Westervelt

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Snap!

Dear Sir: That the Adirondack beaver has taken to sculpture in a serious way is demonstrated by this expertly fashioned, meditative duck which we found on a pile of chips near Piseco.

The legs and feet have been added (purists question our knowledge of duck anatomy) but other than that, the model is exactly as left by the beaver.

Is it possible that the carnival atmosphere which prevails in the Adirondacks has contributed toward a generation of irresponsible beaver?

Or perhaps he just sat there one day contemplating the humdrum appearance of his hewing and something snapped.

Bertha and Orville Slade, Gloversville

• *It would take a bit, we think, to bring the "busy beaver" to a state of irresponsibility, but the Adirondack "carnivals" might well have been the last straw.—Editor*

Old-time Adirondack guide-boat

Fibre-glass boat patterned after original

The old and the new

Dear Editor: Seventy years separates the two enclosed pictures. Guide-boats have been used in the North Country from the days of running deer with hounds and shooting them when they took to water.

The Adirondack guide-boat shown in the old picture could still be in existence today, as many of these light cedar boats have lasted a hundred years or more. The modern fiberglass boat built by the Allcock Manufacturing Company of Ossining, in the other picture, is definitely in daily use. It has never been in a boat house; sun, wind, snow and rain do not bother this material and there are no seams to open up. It may not last a hundred years, but it will make life much easier for the owner by practically eliminating the maintenance needed on the old cedar eggshells.

Fox B. Conner, Ossining

• *Recalling our article, "Adirondack Guide-Boat," (June-July, 1948), most authorities agree that there was only one improvement which Caleb Chase of Newcomb, an intimate friend and adept pupil of Mitchell Sabattis, famous guide and one of the progenitors of the guide-boat, did not originate (although Chase originated the pointed stern) was the decrease in weight which Willie Allen Martin did manage. Hence, "Willie Allen's eggshells."*—Roland B. Miller

Gumdrops and water

Dear Sir: This letter will amuse you and you will no doubt throw it in the waste basket. Here is my problem: I have a half-grown woodchuck on my hands and he is becoming quite a problem. We found him when he was very small (dogs killed the mother). He did not even have his eyes open and we raised him on canned milk with a little doll's bottle. He is quite tame and will eat nothing but "gum drops" and drink nothing but water and canned milk and he seems to be thriving on it. He will not eat any of the vegetables and green stuff that 'chucks normally do.

Here is what I am trying to find out: If I take him far out in the woods will she (it is a female) go back to a wild state and survive or will she perish? Some say the other 'chucks will kill her. Is that so?

I am a great lover of animals and do not wish to hold her in captivity. Neither do I want anything to happen to her. I thought maybe one of your animal experts could advise me.

Edward S. James, Castleton-on-Hudson

• *Gumdrops and water do not appear to be a very appetizing or healthful diet for a captive woodchuck, but the ways of these creatures are strange. Try sweet corn. I'll wager the 'chuck will put away an ear a day. Apples, carrots and beans should appeal. The 'chuck will not be disturbed by others of its kind if released, and would probably fare reasonably well if liberated in an area well removed from habitation.*

Why not let it go into the Winter sleep (hibernation) late this month or early October? A cool fruit cellar or shed will suit its needs. A barrel half filled with dried leaves and straw will provide a suitable nest chamber.

If you have a good supply of gumdrops on hand, and your pet will learn to forego these delicacies, my grandsons are very fond of them.—W. J. Hamilton, Jr., Professor of Zoology, Cornell University

Stumping skunks

Dear Editor: One cold morning in January, we awoke to find our house reeking with the pungent, penetrating, unmistakeable smell of a "wood pussy." The odor seemed to originate in the cellar, but investigation found no evidence there. Since this was our first Winter in the house, we were unaware that underneath our porch local skunks had spent their Winters for years.

After locating the source of the odor and checking the tracks in the snow leading under the porch, we had come to the end of our rope. So we called our friend Carl Prue, Assistant District Game Protector, and he set a cage-like trap, a type which would not harm the animal. This was baited with canned fish. Several false alarms followed. First we caught a small dog, then a couple of cats. We finally succeeded in trapping the odoriferous culprit and Carl Prue removed it—a female skunk about ready to produce more skunks!

Our next concern was to prevent this situation from recurring. "Dig a trench two feet deep and tack some wire mesh around the bottom of the porch, extending into it," advised Carl. Following his advice, we started to dig a trench two feet deep by hand. But the stones and roots made the manual labor too difficult, so we hired a nearby farmer to dig the trench with his tractor scoop.

After investigating the various types of wire suitable for this purpose of an underground fence, we finally found the answer—a galvanized wire screening three feet wide with 1"-mesh. This would not rust or corrode rapidly and was wide enough to give ample protection from burrowing animals. We nailed this to the baseboard of the porch, being careful to keep out the kinks, and then buried the wire, the width of which extended into the trench.

Our project aroused the interest and curiosity of everyone who passed our house. Our great reward came in the Fall, when we found tracks of a skunk completely frustrated in its attempt to burrow under the porch.

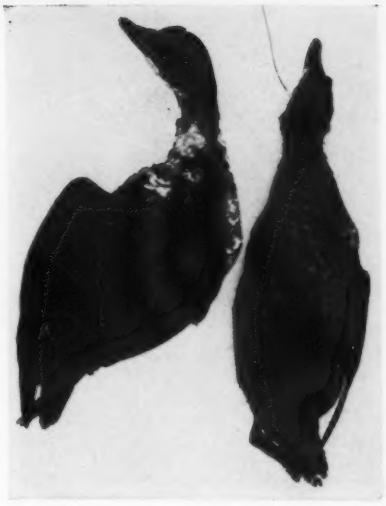
W. B. Andrews,
Franklin Co. Agr. Agt.

Ducks on the pond

Dear Editor: On the back page of your June-July, 1958 issue is a picture by H. Wayne Trimm of mallard ducks on a small pond. We live very close to an estate that has a pond on it for the sanctuary for any wild waterfowl choosing to use it. It is also open to the public, to admire the wildlife, feed same and view the surrounding area. This pond is located in Lyndonville (New York) and is owned by a W. A. Smith. People from all over the United States stop to view the spectacular scene. He has a few tame swans in the pond and it is also stocked with fish. Every year new ducks and geese find their way to this ideal place.

Enclosed is a picture of the mallards. They resemble your said cover so much that we thought you might be interested in seeing them.

Donald D. Cook, Medina



Eiders

Dear Mr. Seagears: On December 20, 1957, I shot a pair of breed ducks while hunting on an island near my home in Henderson Harbor (N. Y.). I have my own opinion on what crosses they were, but would like your professional opinion.

Ken. Harris, a friend of mine in Woodville suggested I send them to you. You should receive them a day or two following this letter. Please write and let me know what you think.

Ronald Ditch, Henderson Harbor

• *Your ducks were promptly received. They're a pair of immature American eiders.*

When mature, in full Winter plumage, the male is a very beautiful bird; mostly white with a peculiar pale green sheen across the cheeks and a deep greenish patch from bill through the eye and back along the head. The hen stays just about the same "black duck" color as the one you sent, all year.

These eiders are fairly common on the North Atlantic coast, particularly along Maine and Nova Scotia. A few come in to the Great Lakes and I have killed a couple on the Hudson River.

Incidentally, this is the only duck with this type of bill structure—the fleshy part extends well back toward the eye in a sort of finger-like projection.

Incidentally, one of the boys is making study skins of the birds which arrived in good condition. Thanks for sending them.—Clayton B. Seagears, Director, Conservation Education

Another Salmon River Salmon

Dear Sir: In your recent issue of August-September CONSERVATIONIST, I read with interest Mr. John R. Greeley's fine answer to Mr. Robert H. Brown's (Pulaski Game Protector) analysis of the Atlantic salmon, caught by Mr. Harold Robinson of Pulaski in the Salmon River on June 6, 1958. I wish to report that our son, "Brad," 15 years old, caught one on May 11, 1958 in a near, relative location in the Salmon River. His fish was, as you will note, caught 26 days before Mr. Robinson's and, therefore, is the first Atlantic salmon taken from this river.

The fish was 17" long and weighed 1 pound, 13 ounces. It had predominantly small head and small fins. The silver consistency was beautiful and its meat was a fine hue of pink throughout. It had no marks of lamprey eels or scars of any kind. "Brad" caught it on a Hildebrandt silver spinner and hollow glass fly rod. The day was sunshiny, and warm and the time was about noon.

A lady who once lived in the town, wrote to the *Pulaski Democrat* newspaper and gave a story that as a little girl, her home was at the site of an old dam across the Salmon River in the middle of the village. In the Spring of 1903 an exceptionally large run of salmon tried to get up over the dam but it was too high and they only battered themselves to death. She relates that during the night she could hear the heavy slaps of unsuccessful attempts of these fish to make the ascent. During the low water period of this same year a lower sluice way at one end of the dam was installed with the viewpoint of getting a lower falls height for the salmon to leap, so that their movement could go farther up the stream to the spawning rapids. However, no salmon appeared in 1904 and haven't until this year. Therefore, 55 years have elapsed. Dams without provisions for fish migration really hurt conservation. I wish to also note that an unused dam in Ogdensburg, across the Oswegatchie River near Bell Feed Company has for years and still does stop fish from going up river and into large Black Lake. This should be a focal point for remeding.

It is interesting to know that the Salmon River was the prize location for salmon runs during the old days when the Indians were the masters. It was the only stream of water that this species of fish used on the south shore of Lake Ontario as far as my research can find. The Indians made their yearly pilgrimages to this river to catch the year's supply and dry them for future food. This is evidenced all along the shores by the presence of camp sites, largely distributed flint chippings and flesh cutting flint tools. We own a farm near Altmar and it is a real thrill to find new proofs regularly of what salmon meant to the Indians in their diet.

Natural rock formation 108 feet high at Salmon River Falls near Redfield was the farthest that this great fish was ever able to migrate but the severe rapids with large holes and the best of fresh water made this river uphold its name. The Indians knew its potential and from all signs used it to the fullest extent. May the day be forthcoming when it can once again take its ranking position among the East's fine varied trout and salmon streams.

Chelson E. Sayer, Rochester

Oak gall

Dear Sirs: This twig was taken from a young oak tree on the lawn. There are many more on the same tree. Can you give me any information on what it is and what can be done to combat it?

Edward Wilson, Clermont

• *The oak gall specimen you submitted has been identified by John A. Wilcox, Curator, State Museum, as being the oak bullet gall,* Holcaspis globulus, *Fitch. For your information we quote the following from the New York State Museum Memoir #8, Vol. 2; "Insects Affecting Park and Woodland Trees," by Dr. E. P. Felt: "Oak bullet gall. Bullet-like galls in clusters of two, three or more are common on the terminal twigs of white oak and occur also on post and chestnut oak. This gall is yellow or reddish in Summer, turning brown with the approach of cold weather, is corky in texture and contains a larva in the small central cell.*

"Gall insects display a marked preference for certain trees, various oaks, willows and rose bushes suffering especially from their attacks. Fortunately this group is comparatively harmless to vegetation."

The only control recommended is to remove the galls by hand while they are still green.—William E. Smith, Forest Pest Control Foreman

Cra-"zee"

Dear Sir: I am enclosing a picture of a soft maple that I think will be of interest. Though it appears that the tree is resting one "elbow" on the ground, it's actually in contact only at the base.

C. L. Hodges, Cherry Creek

Credits

First cover, Doug Finch; second cover, pages 2, 3, 4, 25, 39, fourth cover, H. Wayne Trimm; 5, American Forestry Products Industries; 6, 7, Roy Irving, N. Y. Power Authority; 8, Power Authority; 9, Harry Raymond; 10, Doug Payne; 11, Doug Payne, Trimm; 12, 13, H. Buckley; 14, 35, Earl McGuirk; 16, Div. of Parks; 17, Power Authority, Parks; 18, 19, S. C. S.; 20, 21, Nick Drahos; 22, 28, 32, Irving; 27, Mrs. Robert MacArthur, McGuirk; 29, Irving, Trimm; 30, Herald-Tribune — Ted Kell, N.Y.C. Dept. Parks, Edw. P. Brady; 31, Brady; 33, Leonard Lee Rue III; 37, Paul Gerry; 38, Wisc. Cons. Dept.; 41, R. L. Murray, McGuirk; third cover, Clayt Seagears.

The Fisher, *et al.*

THE most fabulous hierarchy among the fur-bearing aristocrats of the animal world is ruled by six members of the Marten branch of the Weasel family. King of this clan by virtue of value is the Russian Sable. But the largest, rarest and least known of them all is found by the thousands in the Adirondacks of New York. This is the fascinating Fisher, the husky, dusky dagger man of the boreal wilderness.

The average New Yorker may have a nose for Gnus, is able to spell Aardvark and can tell the difference between Haddock, Halibut and Herring. But undoubtedly he never even heard of the Fisher despite the fact that the population of this rare recluse in New York may now exceed that in all the rest of the states combined! Alaska hasn't any.

Inch for inch and pound for pound, the male Fisher is about the size of a Red Fox. He is just as smart and may be smarter. His legs are shorter. So are his low-set rounded ears. His great, black tail is just as long but not quite so bushy and in Summer it may appear almost as slender as a garden hose.

The Fisher travels in 4-foot bounds, arching that long tail out behind. At a distance he appears somewhat cat-like and, curiously, often much larger than he is. This may be because his color is so contrastingly dark or because the observer undoubtedly never saw such a strange beast before.

It is possible—and understandable—that the Fisher in the Adirondacks more than once has been mistaken for a Panther, even a Black Panther (a color phase of the African Leopard). Distance, light conditions or surprise easily can transform a 90-pound deer into a 200-pound buck—and often does.

But let's digress for the benefit of the girls with something about the Fisher's close cousins—those other five members of the fabulously-furred tribe of Martens. These include the Russian Sable, as we have said, and the Baum, Stone, Jap and Pine Martens.

Of the lot, the only American representative is the Pine Marten. A few rigidly protected colonies of these still exist in the Adirondacks. Their normal range extends up through the fir-clad Sierras and the Rockies in the West through forested Canada and Alaska. Somewhat larger than a Mink, this Marten has high, pointed ears and has on its chest a conspicuous light patch of irregular shape which ranges in color from pure white to bright orange (THE CONSERVATIONIST, Feb.-March, 1952). The underfur often is yellowish, especially among Adirondack Marten, in which case it is of limited value and must be dyed. The best pelts usually come from northern Alaska.

The Baum Marten ranges extensively through the forests of Europe from Scandinavia south into Spain and east into the Himalayas of Asia. It rather closely resembles our Pine Marten but normally has a bushier tail, longer fur and is darker.

The slightly less valuable Stone Marten has a similar range through Europe and Asia Minor but extends on into Mongolia and China. Its rich brown fur usually has gray undertones and it is the Marten most commonly used for neck pieces. It exists on the fringes of farm country, like our Weasel while its close kin, the Baum Marten, prefers wilder stuff.

The Jap Marten is larger, less luxuriously furred, less valuable and lives on the four main islands of Japan. That leaves the Sable. This has the longest, darkest, most lustrous fur of them all. It wants no part of Man and it dwells in the deepest, coldest, wildest, most remote wilderness it can find. Where else but Siberia?

When the Romanoffs were Romanoffing, they announced that anybody but royalty who wore Sables would be caught dead in them. It is recorded that a few fashionable commoners disobeyed. Apparently all were crowned later. When the ban was lifted, Sables began to reach world markets in surprisingly large numbers. No wonder when a single fine pelt once sold for as much as $2,000—inch for inch the most expensive fur known.

Native Siberians found that if they could catch one Sable—and get safely to market with it—they could sell it for the equivalent of a year's work pay. Bandits knew that, too, and thousands of unfortunate trappers never made it. Most of them, according to old fur trade notes, hid the pelts in their loose boots or hats. To make it easier, they stretched the Sable skins sideways so that they were wider than long. To this day, thousands of these fine pelts reach the market stretched that same curious way. Evidently the bandit business is still bustling.

In 1957, a total of 53,498 raw Sable pelts valued at $1,332,554 were bought in the United States from Soviet shippers. It is odd that while we may import Soviet Sables, Federal law forbids the importation of Soviet Marten. Some of the finer grades of Marten, in fact, so closely resemble Sable that often they are sold, even unwittingly, for that beast.

In 1951, the year previous to the importation ban, the Soviet Union was the biggest exporter of Marten to the United States, shipping 73,284 of the 214,183 total imported that year. In 1957, a total of only 83,789 skins from 25 countries reached us. Yugoslavia led the sellers with 19,902. West Germany shipped us 18,259. France was next with 8,935 and Canada followed with 6,665.

A fine, silky, sable-blue female Fisher (and there's a big difference) bears great resemblance to its first cousin, the Sable. It is substantially more rare, too. Only a few thousand pelts are imported annually from Canada, even in years when fur values are high.

The Fisher always has been one of the world's most highly valued fur animals. Except for the Silver Fox in the days when it was a diamond-studded novelty, it invariably has headed New York's fur price parade. Fine single skins have sold in the New York and St. Louis fur auction houses for up to $200.

The female Fisher is the valued one—not the male. She grows only two-thirds as large as the Old Man. But she's silky, like all females should be, while the fur of the adult male is coarse and often as grizzled as a Woodchuck's around the neck and shoulders. In general, the color is rich, deep mahogany with bluish overtones in the long guard hair which shades into black. Head and neck are grizzled buff with the outer hairs tipped with dark brown. The tail and legs are almost Skunk-black.

The Fisher spends most of his time on the ground—at least in the Adirondacks in Winter. But despite his 12-pound weight, he can scramble around in the trees with marvelous agility and doesn't hesitate to jump from one spruce into another like a Squirrel—or a Marten. He eats both.

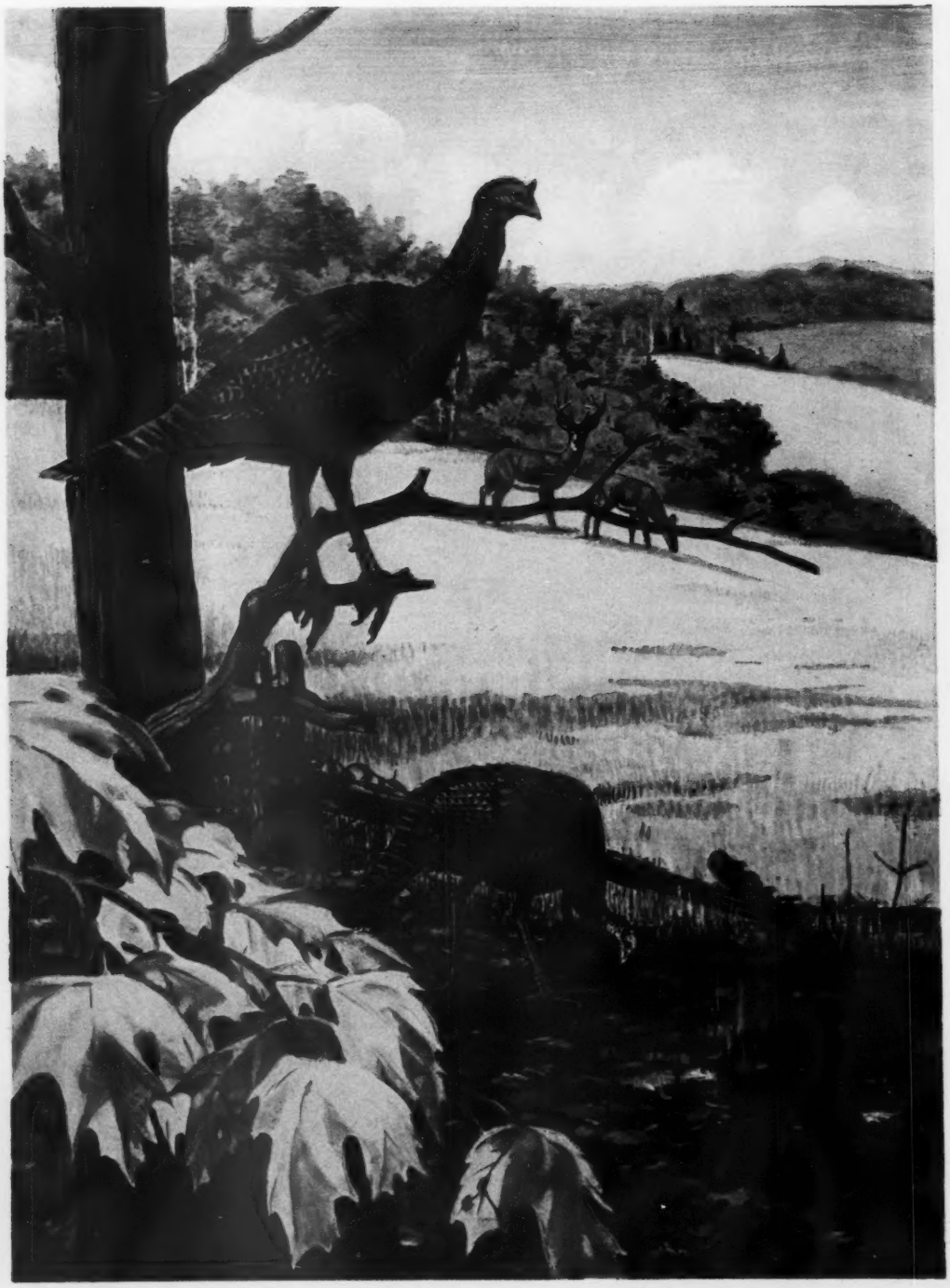
His diet is as omnivorous as that of a Raccoon or a Fox. In their analysis of the stomachs of 60 Fishers trapped in the Adirondacks, Art Cook of the Conservation Department and Dr. W. G. Hamilton, Jr., of Cornell, found the remains of ten different mammals, plus birds, fish, insects, mosses, ferns and fruit (mostly beechnuts).

The Fisher has an extra-long gestation period—only a few days short of a year. The young apparently are born in New York about early March. And in that month they pitch woo, too. There may be some connection between that and such a splendid coat of fur but I can't think of any.

—CLAYT SEAGEARS

ADIRONDACK FISHER

Drawn from a very large captive male nearly 4 feet long The chipmunk shows relative size.



Return of a native. *(See page 32)*